

Order Berycoidei

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Head with more or less prominent mucous cavities. Maxillary not greatly protractile. Teeth numerous, usually small. No mesocoracoid bone.

Branchiostegals 4 to 9. Pseudobranchiae present. Air bladder sometimes with duct throughout life, or losing it with age. Vertebrae 24 to 30. No suborbital stay. Post-temporal not fused with cranium. Shoulder girdle normal. Scales absent, or cycloid in bathypelagic forms and more or less spinescent in shore forms. Front rays of vertical fins usually spinous, rarely absent. Caudal usually with 19 principal rays, 17 or 18 branched, fin more or less forked. Ventrals thoracic or subabdominal, spine present or absent and rays 3 to 13.

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A large group of marine fishes,
most all inhabitants of deep water.
Fossils were abundant in Cretaceous
time and the living forms show
many primitive characters. They
are of interest as they show, in
this respect, relationship suggestive
of the herring-like fishes and
in other ways affiliation to
the more percoid like fishes.
The fossil family Berycopsidae
from the English Chalk is
admitted by Regan as in some
ways intermediate between the
Polymixiidae and the Berycidae.

Analysis of Families

a.' No subocular luminous organ.

b.' Chin without barbels.

c.' No teeth on palate.

d.' Ventrals abdominal.

e.' No scales; head enormous;
caudal forked. Rondeletiidae.

e.² Scales present.

f.' Scales of lateral line not enlarged,
or larger than those adjacent. Stephanolepidae.

f.² Scales of lateral line enlarged.
Gibberichthyidae.

d.² Ventrals thoracic.

g.' Scales spinulose, small, adherent.
Dirismidae.

g.² Scales cycloid. Melamphaidae.

c.² Teeth on palate.

h.' Dorsal spine single or absent.

i. Scales cycloid, deciduous.

j.' Mouth superior; dorsal
with 1 spine and 8 or 9 rays.

27607

A.N.S.P. Padang, Sumatra.

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^vHarrison and ^{H.Y.}Hiller: Length 165 mm.
_{a.c.}

When fresh in arrack pale olive, somewhat silvery and pale or whitish below. Dull olive band from head along back above lateral line, another along directly below lateral line and crossing posteriorly, still below band of very pale lilac (like band between 2 upper olivaceous bands) to caudal base. Fins pale. Dorsal with 3 narrow distinct pale brown lines, uppermost beginning at fourth spine and extending near fin edge to tip of last ray, below another similar line, beginning at seventh spine; below this third one, beginning on second soft ray; lines on dorsal fin all rather close together on upper portion. Anal pale sulphury yellow, with 2 narrow grayish

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Bathyclupeidae.

j.² Mouth inferior; no dorsal spine, rays 34. Caristiidae.

h.² Dorsal spines 2 to 8.

k.¹ Scales denticulate or ctenoid.

l.¹ Suborbitals very wide, cover cheeks; ventral rays 5 or 6.

m.¹ Preopercle without spine; dorsals not divided.

Trachichthyidae.

m.² Preopercle with elongate robust spine; dorsal deeply divided.

Ostracoberycidae.

l.² Suborbitals narrow, not covering cheeks; ventral rays 10 to 13.

Berycidae.

k.² Scales bony, as coat of mail; ventral rays 3.

Monocentridae.

h.² Dorsal spines 10 to 13; anal spines 4.

Holocentridae.

b.² Chin with pair of hyoid barbels; ventral rays 7 or 8; teeth on palate.

caudal peduncle 3; pectoral $1\frac{1}{10}$;
ventral 1.

Back warm brown, greater part of sides and below silvery white. Iris yellow. Fins all very pale, lower as well as paired ones whitish. Two dark submarginal lines begin on spinous dorsal and extend back all way to last rays.

East Indies. I have seen but a single example. It has the suborbital depth $\frac{7}{8}$ of the eye and in most respects agrees with Bleeker's figure.

Polymixiidae.

a.² A subocular luminous organ;
teeth on palate.

Anomalopidae.

edge with very minute inconspicuous
 serrae, lower edge entire. Gill rakers
 6 + 7 short, broad, spinescent tubercles,
 $\frac{1}{3}$ of gill filaments, which $1\frac{2}{3}$ in eye.

Scales 45 in lateral line to
 caudal base; 4 above, 9 below, 14
 predorsal forward opposite eye center;
 3 rows of scales on cheek above
 preopercle ridge, flange broadly naked;
 caudal nearly entirely covered with
 minute scales. Scales with 7 or 8
 basal radiating striae; 105 to 122 short
 apical denticles, with 2 to 12 transverse
 series of basal elements; circuli very
 fine.

D. X, 9, V, fourth spine 3 in head,
 first ray $2\frac{1}{4}$; ^{length 133.} A. III, 7, V, third
 spine $3\frac{1}{8}$, first ray $2\frac{4}{5}$, ^{last} ~~sickle~~
~~with~~ $2\frac{1}{5}$, caudal $1\frac{1}{5}$, deeply emarginate
 with lobes pointed; least depth of

Family Rondelettidæ

Body deep, massive. Head enormous. Snout moderate. Eye small, high. Mouth large. Margin of upper jaw formed only by premaxillaries. Teeth coarsely granular. No barbels. Opercular apparatus incomplete, bones very thin, membrane like. Gill openings very wide, - gill membranes deeply cleft and free from isthmus. No pseudobranchiae. Gills $3 \frac{1}{2}$, only small opening and few reduced lamellae on hind side of fourth arch. No air bladder. Gall bladder separate from liver. Skin scaleless, smooth, loose, not adherent to outer surfaces of

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Plectorhynchus diagramma (Linnaeus)

Perca diagramma Linnaeus, Syst. Nat., ed. 10, vol. 1, 1758, p. 293. Habitat?; ed. 12, vol. 1, 1766, p. 487. — Bonnaterre, Tabl. Ichth., 1788, p. 133 (no locality). — Gmelin, Syst. Nat. Linn., vol. 1, 1789, p. 133. — Walbaum, Artedii Pisc., vol. 3, 1792, p. 342 (on Linnaeus).

Plectorhynchus diagramma Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 267 (Apia; Pago Pago).

Plectorhynchus diagramma Fowler, Bull. Bishop Mus., no. 22, 1925, p. 9 (Guam); Brem. Bishop Mus., vol. 10, 1928, p. 206 (Guam; Apia).

skull or to visceral skeleton.

Dorsal fin postmedian, opposite anal, moderate low. No adipose fin. Anal like dorsal. Caudal moderate, forked, with 19 principal rays of which 17 branched. Paired fins small, ventrals abdominal. No spinous rays in vertical or ventral fins, except procurent caudal rays.

One genus of deep sea fishes. Though previously placed near or with the *Imitimi* these fishes have recently been placed in Regan's order *Xenoberyces* 1911 by Parr who remarks "In addition to the points of resemblance already mentioned by Regan one may however, on the other hand,

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Syngnathus virgatus (Houttuyn)Sparus virgatus Houttuyn, Verhandel.

Holland. Maatsch. Haarlem, vol. 20,

1782, p. 323. Japan. ¹/_m Gmelin, Syst.

Nat. Linn., vol. 1, 1789, p. 1276 (Japan

sea). ¹/_m Walbaum, Artedii Piscium, vol.3, 1797, p. 300 (on Gmelin). ¹/_m Forster,Fauna Indica, 1795, p. 15. ¹/_m Lacépède,

Hist. Nat. Poiss., vol. 4, 1802, pp. 30, 104

(Japan). ¹/_m Schneider, Syst. Ichth. Bloch,
1801, p. 284 (Japan).Heniepterus virgatus Jordan and Evermann,

Proc. U. S. Nat. Mus., vol. 25, 1903, p. 346

(Formosa; Keelun). ¹/_m Jordan and Richardson,

Mem. Carnegie Mus., vol. 4, no. 4, 1909, p.

186 (Keelun record).

Euthyopteroma virgatum Jordan andThompson, Proc. U. S. Nat. Mus., vol. 41,

1912, p. 564, fig. 5 (Tokyo, Nagasaki, Keelun).

¹/_m Tanaka, Fishes of Japan, vol. 12, July

also call attention to such a great number of other osteological characters in which Rondeletia shows a perfect concordance with the true Berycomorphi, that the justification of maintaining two entirely separate orders seems rather problematical."

longitudinal lines shown on figure,
one on each scale row medianly and
lowest not below level of pectoral base.
Fins rosy. Dorsals with yellow upper
edge. Length 178 mm. (Bleeker.)
East Indies.

Genus Rondeletia (Goode and Bean)
Rondeletia (Goode and Bean, Proc.
 U. S. Nat. Mus., vol. 17, 1894 (1895),
 p. 454. (Type Rondeletia bicolor (Goode
 and Bean, monotypic.)

Body compressed, oblong. Head
 nearly equals rest of fish. Snout
 rather long, obtuse. Eye advanced in
 head. Mouth cleft little inclined,
 lower jaw projecting. Maxillary reaches
 beyond eye. Teeth in bands in
 jaws, none on palate. Hind nostril
 with slender filament anteriorly.
 Gill rakers long, slender. Branchiostegals 8.
 Intestine convolute. Urinary bladder large.
 Skeleton coarsely spongy. No lateral
 line. Vertebrae 27, of which 16 caudal.
 Pyloric coeca 5. Caudal peduncle
 small, narrow. Posterior rays of dorsal
 and anal highest. Pectoral low.
 Ventral postmedian.
 One species.

Rondeletia bicolor Goode and Bean

Rondeletia bicolor Goode and Bean,
Proc. U. S. Nat. Mus., vol. 17, 1894

(1895), p. 454, pl. 17, fig. 1. N. $36^{\circ}47'W$.

$73^{\circ}25'$, 1641 fathoms. — Goode and Bean,
Oceanic Ichth., 1895, p. 68, pl. 21, fig. 77

(type). — Jordan and Evermann, Bull.

U. S. Nat. Mus., no. 47, pt. 1, 1896, p. 548,

(copied). — Parr, Bull. Bingham

Oceanogr. Collection, vol. 3, art. 3, Dec.

1928, p. 179 (N. 21° to $24^{\circ}W$. 71° to 77° , 4000 to

10000 feet); Oceas. Pap. Bingham

Oceanogr. Collection, no. 2, p. 141, figs.

16-19, February 1929 (anatomy);

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 404, 1899

(reference). — Brauer, Deutsch. Tiefsee Exped.

Valdivia, vol. 15, Tiefsee-Fische, p. 386, 1906

(reference).

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Bull. Bingham Oceanogr. Coll.,
vol. 3, art. 6, p. 25, December 1933
(lat. 21° to 24° N., long. 71° to 77° W.,
4000 to 10000 feet).

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Synagris tambuloides (Bleeker)

Gentex tambuloides Bleeker, Natuurk.
Tijdschr. Nederland. Indië, vol. 4,
1853, p. 465. Batavia, Java; Atlas
Ichth. Ind. Néerland., vol. 8, 1876-77,
p. 92, pl. (50) 328, fig. 1 (Java; Celebes).

Depth 4; head $3\frac{1}{5}$, profile inclined.
Snout 3 in head; eye $3\frac{3}{5}$, $1\frac{1}{10}$ in
snout, greater than interorbital;
maxillary reaches $\frac{1}{5}$ in eye, length
 $2\frac{3}{5}$ in head; jaws subequal; 10 front
upper canines, none below; teeth in
villiform bands in jaws, outer row
little enlarged; interorbital low,
eye impinging on upper profile;
preopercle with hind edge finely
serrate, lower edge entire; preorbital
depth $1\frac{1}{3}$ in eye.

Scales 50 in lateral line; 4 above,
11 below, predorsal extend forward

Depth $2\frac{4}{5}$; head $2\frac{1}{8}$, width $2\frac{1}{6}$. Snout $2\frac{3}{4}$ in head from orbit; eye $8\frac{7}{8}$, $3\frac{4}{5}$ in snout, $3\frac{3}{4}$ in interorbital; maxillary reaches but very slightly behind hind eye edge, expansion $1\frac{1}{2}$ in eye, length $1\frac{2}{3}$ in head from snout tip; interorbital 3, low, nearly level; strong spine, with few small notches above upper hind edge of orbit and directed forward. Gill rakers $6 + 13$, lanceolate, slender, $1\frac{1}{5}$ in orbit or twice long as gill filaments. Skin firm, intact, apparently

not easily torn and without scales. ¹⁶⁰

D. 14, fin height $3\frac{2}{3}$ in
total head length; A. 14, fin
height $4\frac{3}{5}$; caudal $4\frac{1}{3}$,
little emarginate with broad
lobes; least depth of caudal
peduncle $6\frac{1}{4}$; pectoral $4\frac{3}{5}$;
ventral $4\frac{1}{4}$

Uniform chocolate brown.

Teeth and edges of jaws very pale
brown. Edges of all fins broadly
white. Iris neutral gray.

Off Eastern United States.

38202 U. S. N. M. N. 36°

W. 73°

Albatross Station

2724. Length 108 mm. Type.

Family Stephanoberycidae

Body oblong, compressed. Head large, thick, oblong, cavernous, with osseous ridges, especially an inner U-like one on crown with divergent limbs on each side of nape; sigmoid outer ridge each side above eyes, continuous with similar ridge projecting from nasal bone, inner and outer ridges connected by cross ridge opposite front edge of orbit. Snout short. Mouth very wide, oblique, lower jaw slender. Maxillary large. Premaxillaries protractile. Teeth small, in band on premaxillaries and dentaries. Palatines toothless.

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Preopercle oblique. Bones of head usually serrated. Gill openings large, membrane forming short free fold over isthmus anteriorly. Gill rakers lanceolate. Gills 4, slit behind fourth. Pseudobranchiae present. Scales circular, scarcely imbricated, spinuliferous. Dorsal single, median or postmedian. Spinous rays of dorsal and anal short, slender and little differentiated from branched rays. Anal begins behind dorsal origin. Ventrals abdominal, more posterior with age, with spine and 5 rays.

Bathypelagic.

Genus Stephanoberyx Gill

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Stephanoberyx Gill, Proc. U. S.
Nat. Mus., vol. . . , p. 258, 1883.

(Type Stephanoberyx monae Gill,
monotypic.)

Body elongate, rather slender.
Head oblong, compressed,
cavernous. Snout obtuse, broad.
Eyes rather small, advanced,
lateral. Mouth inferior or
inferiorly terminal, little inclined.
Maxillary extends behind eye,
expands behind. Teeth villiform,
acute, in rather wide band on
premaxillaries and dentaries.
Palate toothless. Branchiostegals
7 or 8. Scales moderate, crowned
with small denticles, nearly
divergent. Dorsal spines 2 or 3,
branched rays 9 to 12. Anal with
short spine and 10 to 12 branched
rays. Caudal emarginate, small.

Pectoral rays 13 to 15. Ventral¹⁶⁵
with spine and 4 or 5 rays,
placed behind pectoral.

Although two species have
been accepted for this genus
no intermediate specimens between
the largest of Stephanoberyx
monae and the smallest of S.
gillii have been studied. The
distinctions shown in the figures
by Goode and Bean are not
entirely reliable and therefore do
not accurately set forth the
details of their materials.

Analysis of species

a.¹ Head $2\frac{2}{3}$ to $2\frac{3}{4}$; lower gill
rakers 25; ventral origin midway
between pectoral and anal origins;
D. II or III, 11 or 12. monae.

a.² Head $2\frac{4}{5}$ to 3; lower gill
rakers 17 or 18; ventral origin
much nearer anal origin than
pectoral origin; D. II or III, 8 or 9.
gillii.

286, 287, 3610, 3620. Busin Harbor.

March 8, 1909. Length 65 to 105 mm.

1210 and 3607. Capuluan Bay, Tagbilaran Island. February 24, 1909. Length 110 to 141 mm.

843 to 846, 1134. Cotaingan Bay. April 18, 1908. Length 65 to 90 mm.

3587. Cammahala Bay, Ragay Gulf. March 11, 1909. Length 96 mm.

944. Cebu market. April 5, 1908. Length 133 mm.

350 and 9666. Endeavor Strait. December 22, 1908. Length 88 to 134 mm.

70, 1296, 1297. Endeavor Strait. December 23, 1908. Length 56 to 103 mm.

4670. Galvaney Island, Ragay Gulf. March 9, 1909. Length 106 mm.

21583. Guinigan Island. June 4, 1909. Length 45 mm.

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Stephanoberyx monae Gill

Stephanoberyx monae Gill, Proc. U. S. Nat. Mus., vol. , p. 258, 1883
(type locality, lat. $41^{\circ} 9' 40''$ N., long. $66^{\circ} 2' 20''$ W., Gulf Stream, in 1255 fathoms). — Günther, Rep. Voy.

Challenger, vol. 22, p. 30, 1887 (copied).
— Goode and Bean, Oceanic Ichth., p. 786, pl. 55, fig. 205, text fig. (head), 1895
(lat. 28° to 88° N., long. 15° to 46° W., 535 to 966 fathoms).

— Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 836, 1896 (copied).
— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). —
Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., 1928 (1930), pt. 2, p. 232 (reference).

Depth $3\frac{1}{8}$ to $3\frac{7}{8}$; head $2\frac{2}{3}$ to $2\frac{3}{4}$, width $1\frac{7}{8}$ to 2. Snout $3\frac{2}{3}$ to $3\frac{3}{4}$ in head from snout tip; eye $4\frac{4}{5}$ to $5\frac{1}{2}$, $1\frac{2}{5}$ to $1\frac{1}{2}$ in snout, $2\frac{1}{4}$ to $2\frac{2}{3}$ in interorbital; maxillary reaches $\frac{2}{3}$ an eye diameter behind eye, expansion $1\frac{2}{5}$ to $1\frac{1}{2}$ in eye, length $1\frac{2}{5}$ to $1\frac{1}{2}$ in head from snout tip; interorbital $2\frac{1}{2}$ to $2\frac{2}{3}$, convexly elevated. Gill rakers 15 + 25, lanceolate, $1\frac{1}{3}$ times eye; gill filaments $\frac{2}{5}$ gill rakers.

Scales 39 to 42 in lateral line to caudal base and 2 more on latter; 8 or 9 above, 8 above anal fin origin; 16 to 20 predorsal

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Depth $1\frac{3}{5}$ to $1\frac{3}{4}$; head 3 to $3\frac{1}{3}$; width $1\frac{4}{5}$ to 2. Snout 3 to $3\frac{1}{8}$ in head from snout tip; eye 3 to $3\frac{3}{5}$, 1 to $1\frac{2}{5}$ in snout, slightly greater than interorbital in young to $1\frac{2}{5}$ in adult; maxillary reaches about opposite hind nostril $3\frac{2}{3}$ to $3\frac{4}{5}$ in head; interorbital $3\frac{1}{5}$ to $3\frac{1}{4}$, broadly convex; preopercle spine along upper edge $2\frac{1}{2}$ to 4. Gill rakers 4 + 12, short robust points, 5 of gill filaments, which $1\frac{1}{4}$ in eye.

Scales 61 to 72 between gill opening and caudal base; 12 or 13 scales above lateral line, 23 to 28 below. Scales with 4 basal radiating striae; apical denticles 17 to 31, each with long slender rootlet; circuli fine.

D. XII, 17, I or 18, I, last spine $1\frac{1}{4}$ to $1\frac{2}{3}$ in total head length; sixth ray $1\frac{1}{3}$ to $1\frac{1}{2}$. A. III, 17, I or 18, I, third spine $1\frac{2}{5}$ to $1\frac{4}{5}$, sixth ray $1\frac{1}{4}$ to $1\frac{3}{4}$; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{3}{4}$; caudal rounded convexly behind, $1\frac{2}{5}$ to $1\frac{1}{2}$; pectoral $1\frac{1}{3}$ to $1\frac{2}{3}$; ventral 1 to $1\frac{1}{8}$.

Trunk posteriorly and tail dusky brown, shading anteriorly pale brown to head. Iris brown. Broad dusky brown band from occiput includes eye and meets on breast its fellow, where also narrowing. Front of lips dusky brown. On trunk and tail many wavy gray longitudinal lines, variously broken and irregular.

forward nearly opposite hind eye edge. Scale with cluster of 5 to 7 rather long divergent apical spines; 24 circuli basally.

D. II or III, 11 or 12, fin origin median or little nearer caudal base than snout tip, first branched ray $2\frac{1}{8}$ to $2\frac{1}{3}$ in total head length; A. I, 11 or 12, fin origin little behind dorsal origin, first branched ray $1\frac{2}{5}$ to $2\frac{2}{5}$; caudal $1\frac{4}{5}$ to $1\frac{7}{8}$, little emarginate behind; least depth of caudal peduncle $2\frac{4}{5}$ to $2\frac{7}{8}$ in its own length; pectoral 2 to $2\frac{1}{5}$; rays I, 12; ventral I, 5, fin $3\frac{1}{2}$ to 4 in total head length.

Body brown. Head, belly, breast, chest and region about

Holacanthus mesoleucos Cuvier, Hist. Nat.
Poisson, vol. 7, 1831, p. ~~127~~¹⁷⁰ (Moluccas, Java).
 — Kner, Reise Novara, Fische, 1869, p. 105
 (Java and Singapore).

Chaetodontoplus mesoleucus Bleeker, Atlas
Ichth. Ind. Néerl., vol. 9, 1877, p. 56, plate
 (7) 369, fig. 5 (Batu, Singapore, Ruizend
 Islands, Java, Celebes, Halmahera, Batjan,
 Ibi major, Ceram).

Chaetodon mesomelas Gmelin, Syst. Nat.
Linn., 1789, p. 1263. Japan (on Block). —
Forster, Fam. Indica, 1795, p. 15.

Chaetodon atratus Gray, Cat. Fish. Grenov.,
 1854, p. 54. India.
 vol. 2,

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pectoral base blue or slate black.
Iris neutral slate. Inside
gill opening black. Fins pale.
Gulf Stream.

U. S. N. M., No. 33445. Type.
Lat. $41^{\circ} 9' 40''$ N., long. $66^{\circ} 2' 20''$, 1255
fathoms.

Albatross Collection $\frac{101}{5}$.

Length 47 mm.

U. S. N. M., No. 46122.

Albatross Collection 2393. Length
40 to 102 mm. Two examples.

U. S. N. M., No. 46123.

Albatross Collection 2385. Length
75 to 113 mm. Seven examples.

Holacanthus mesoleucus (Bloch).

Chaetodon mesoleucus Bloch, Naturg.

Aust. Fische, band 3, 1787, p. 117, plate 216, fig. 2. Japan. — Walbaum, Arted. Pisc., vol. 3, 1792, p. 411 (on Bloch). — Schneider, Syst. Ichth. Bloch, 1801, p. 227 (Japan).

Chaetodon mesoleucus Bonnaterre, Tabl.

Ichth., 1788, p. 87 (Japan).

Holacanthus mesoleucus Lacépède, Hist. nat.

Pois., vol. 4, 1802, pp. 528, 535 (Japan).

— Günther, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 54 (Macassar and Moluccas). —

Károli, Termész. Füzetek, Budapest, vol. 5, 1881, p. 156 (Paranatak and Singapore). —

Sünncker, Mittheil. nat. Mus. Hamburg, band 21, 1903 (1904), p. 151 (Singapore).

— Meyer, Ann. Soc. Espanola Hist. Nat.

Madrid, vol. 14, 1885, p. 18 (Menado and Macassar, Celebes). —

U. S. N. M., No. 46124.

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Albatross Collection 2392. Length 37 to 100 mm. Ten examples.

U. S. N. M., No. 46126.

Albatross Collection 2140. Length 81 to 105 mm. Five examples.

U. S. N. M., No. 46127.

Albatross Collection 2117. Length 96 mm.

U. S. N. M., No. 46128.

Albatross Collection 2654. Length 108 mm.

Greatly like Holacanthus imperator
but differs in a blue humeral annulus.

Known only from India and the
East Indies.

72698 U. S. N. M. Batavia, Java. Messrs.
Bryant and Palmer. Length 230 mm.

U. S. N. M., No. 83892.

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Albatross Collection 2751. Length 78
to 11.7 mm. 24 examples.

U. S. N. M., No. 84492.

Albatross Collection 2385. Length 76
mm.

vol. 2, 1889, p. 16.

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Acanthochaetodon annularis Bleeker,

Atlas Ichth. Ind. Néerl., vol. 9, 1877,

p. 71, plate (8) 370, figs: 1-2 (Sumatra,

Pinang, Singapore, Java, Celebes).

^{Bigand Weid., Proc. Bat. Mus., vol. 42, 1912, p. 607 (Batavia).}

Holacanthus septentrionalis (part) Richardson,

Rep. Ichth. China Jap., 1846, p. 246.

Chaetodon resimus Gray, Cat. Fish. Gronou,

vol. 2, 1854, p. 71. Indian Ocean.

Chaetodon vorticosus Gray, l.c., p. 74, Indian

Ocean.

Holacanthus pseudannularis Bleeker, Nat.

Sysd. Ned. Indie, deel 15, 1858, p. 168.

Batavia. — Günther, Cat. Fish. Brit.

Mus., vol. 2, 1860, p. 43 (copied).

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Stephanoberyx gillii Goode and Bean

Stephanoberyx gillii Goode and Bean,
Oceanic Ichth., p. 187, pl. 56, fig. 206,
1895 (type locality, lat. $37^{\circ}29'N.$,
long. $70^{\circ}58'40''$, Gulf Stream, in 2949
fathoms, Albatross Station 2102, in
1209 fathoms).

— Jordan and Evermann, Bull. U.S. Nat.
Mus., no. 47, pt. 1, p. 836, 1896 (compiled).

— Garman, Mem. Mus. Comp. Zool.,
vol. 24, p. 383, 1899 (reference). —

Jordan, Evermann, Clark, Rep. U.S. Comm.
Fishes, 1928 (1930), pt. 2, p. 232 (reference).

Depth $3\frac{3}{5}$ to 4; head $2\frac{4}{5}$ to 3,
width $1\frac{4}{5}$ to $1\frac{7}{8}$. Snout $3\frac{1}{5}$ to $3\frac{1}{2}$
in head; eye 5 to $5\frac{1}{8}$, $1\frac{1}{3}$ to $1\frac{3}{5}$
in snout, $1\frac{4}{5}$ to 2 in interorbital;
maxillary reaches $\frac{1}{2}$ to $\frac{3}{5}$ an eye
diameter behind eye, expansion 2
in eye, length from front tip
 $1\frac{4}{5}$ in head; interorbital $2\frac{1}{3}$
to $2\frac{3}{5}$, broadly convex. Gill
rakers 10 + 17 or 18, lanceolate,
 $1\frac{1}{8}$ in eye; gill filaments $\frac{3}{5}$ of
gill rakers.

Scales 52 in lateral axial
series to caudal base and 2
more on latter; 8 above, 7 below,
26 predorsal forward nearly
opposite hind eye edge. Scales
with 1 to 4 erect denticles with
radiating basal ridges; no
circuli.

Holacanthus annularis (Bloch).

Chaetodon annularis Bloch, Naturg.

Ausl. Fische, band 3, 1787, p. 114, plate 215, fig. 2. East Indies. — Gmelin, Syst. Nat. Linn., 1789, p. 1262 (India).

— Walbaum, Artedi Pisc., vol. 3, 1792, p. 425 (East Indies). — Forster, Fauna Indica, 1795, p. 15. — Cuvier, Hist. Nat. Poiss., vol. 7, 1831, p. ~~133~~¹⁷⁸ (Pondichery, Moluccas, Malacca).

Chetodon annularis Bonnaterre, Tabl. Ichth., 1788, p. 91 (East Indies).

Holacanthus annularis Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 526, 533 (East Indies). — Cantor, Journ. Asiat. Soc. Bengal (Cat. Malay. Fish.), vol. 18th, 1849, p. 164 (Pinang). — Günther, Cat. Fish.

Brit. Mus., vol. 2, 1860, p. 42 (Ceylon, Moluccas). — Day, Fishes of India, pt. 1, 1875, p. 112, plate 29, fig. 1. — Day, Fauna British India,

D. II, 9, I or III, 8, fin origin midway between preopercle angle and caudal base, first branched ray $2\frac{2}{5}$ to $2\frac{2}{3}$ in head; A. I, 11 or I, 10, I, fin origin slightly behind dorsal origin, first branched ray $2\frac{3}{5}$ to 3 in head; caudal $1\frac{7}{8}$, emarginate behind; least depth of caudal peduncle $3\frac{1}{4}$ to $3\frac{2}{5}$, $2\frac{1}{5}$ to $2\frac{1}{4}$ in its own length; pectoral $2\frac{1}{5}$ to $2\frac{2}{5}$, rays I, 12 to I, 14; ventral I, 4, fin $4\frac{2}{5}$ to 5 in head, origin at last $\frac{2}{5}$ in space between pectoral and anal origins.

Pale brown generally, with neutral gray shades mostly on sides and under surface of head, pectoral region, breast and belly. Iris neutral gray.

808

Ventral rays number, spines purple
at tip and membranes pale purplish.

A 525. Buluan Island. September 13, 1909.
Length 178 mm.

A 1208. Dovorra Island. December 2, 1909.
Length 270 mm.

8507. Entrance to Puerto Princessa Bay.
April 5, 1909. Length 160 mm.

6230. Medio Island, Galera Bay,
Mindanao. June 9, 1908. Length 215 mm.

A 748. Sipadan Island. September 28, 1909.
Length 230 mm.

8529. Verde del Sur Island. April 6, 1909.
Length 204 mm.

(1 example. Philippines. Length 140 mm.

43943 U.S.N.M. Mauritius. Colonel
Nicholas Pike. Length 217 mm.

61679 U.S.N.M. Suva. Dr. B. G. Comey.

Inside gill opening brown.

Gulf Stream.

U. S. N. M., No. 33555. Type.
Lat. $39^{\circ}29'N.$, long. $70^{\circ}58'40''$.

Albatross Collection 2099.

Length 153? mm, caudal tips broken.

U. S. N. M., No. 35464.

Albatross Collection $\frac{101}{6}$.

Length 147 mm.

U. S. N. M., No. 46121.

Albatross Collection 2102. Length 120
to 147 mm. Two examples.

Holacanthus chrysurus Cuvier.

Holacanthus chrysurus Cuvier, Hist. Nat. Poiss., vol. 7, 1831, p. ¹⁸⁸441. no locality (on Gaimard). — Günther, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 54 (copied). — Playfair, Fishes of Zanzibar, 1866, p. 38 (Uden and Zanzibar).

D. XIII, 19, fin slightly pointed. A. III, 19. Brown. Blue line from neck round eye towards mouth, emitting 3 other lines to interopercle edge; vertical line on preopercle extends before pectoral to ventral base; third on chest; body with 6 arched whitish lines, alternately broader and narrower, extend over dorsal and anal; several other indistinct lines in interspaces between those described. Caudal yellow, with fine marginal lines. Length 127 mm. (Cuvier). Possibly not different from Holacanthus semicirculatus.

Family Gibberichthyidae

Body short, compressed. Head enormous, greater than trunk. Snout moderate. Eye moderate. Mouth large, terminal. Maxillary well developed. Teeth all fine, without canines, none on palate. Gill rakers well developed. Pseudobranchiae present. Pyloric coeca moderately numerous. Small opening behind fourth gill. Scales rather large, deciduous. Abdomen without scaly keel. No subocular organ. Dorsal and anal fins with few, thick, graduated spines. Caudal with 19 main rays. Pectoral moderate. Ventral small, with spine and 5 rays, subabdominal, at end of strongly developed pelvic bones well behind pectoral fins.

Black, deep sea fishes, represented by a single genus, greatly unlike most of the members of its order. According to Parr "It seems to occupy a rather isolated position and the introduction of a new family, at least, seems fully warranted by

Ventral axil sulphur yellow, with second ray same color.

Japan. The profile of the head and body suggest hemipterus luteus Jordan and Seale as figured in 1907.

6204 and 13739. Batangas market.

June 6, 1908. Length 242 to 245 mm.

Rosy red on top of head, back and upper side. Lower parts of body paler, breast and belly white mesially. Sulphur yellow wash on throat and edges of interopercles, continued backward as broad stripe passing above ventrals along anal base and ending at caudal base. Pale silvery

the character of its general appearance. It is unfortunate, however, that the existence of only one single, small specimen in the available collections does not make an anatomical investigation possible and therefore only permits of a provisional and rather incomplete definition of the new family."

Order Peresoces

179

Genus Gibberichthys Parr

Gibberichthys Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 5, December 1933. (Type Gibberichthys pumilus Parr, monotypic.)

Body very short, rather oblong, with moderate caudal peduncle. Head enormous, cavernous, cavities covered by skin with very wide simple pores, crests and ridges spiny. Eye advanced. Mouth very large, moderately oblique. Mouth very large, slightly inclined. Upper maxillary edge slipping below preorbital and anterior suborbitals. Teeth minute, villiform, in 2 or 3 irregular rows in each jaw.

Genus Trachystoma Ogilby

Trachystoma Ogilby, Proc. Zool.

Soc. London, 1888, p. 614. (Type

Trachystoma multidens Ogilby,

Preopercle with spines both along front and hind free edge. Opercle with broad, flat, inconspicuous spine. Subopercle and interopercle smooth. Broad double crested spine in scapular region. Gill rakers long. Pyloric coeca 10. Scales moderate, little enlarged in lateral line. Dorsal with 5 very thick graduated spines and 9 soft rays. Anal with 3 thick graduated spines and 9 soft rays. Caudal moderate, slightly forked, lobes rounded. Pectoral low. Ventral small, with rather thick skin.

One species.

Genus Myxus Günther

Myxus Günther, Cat. Fish. Brit.
Mus., vol. 3, p. 466, 1861. (Type

Myxus elongatus Günther,
designated by Jordan, Genera of
Fishes, pt. 3, p. 307, 1919.)

Body elongate, fusiform. Head
pointed. Eye large, advanced,
high.

181

Gibberichthys pumilus Parr

Gibberichthys pumilus Parr,

Bull. Bingham Oceanogr.

Coll., vol. 3, art. 6, p. 5, fig. 1,

December 1933 (type locality,

lat. $21^{\circ}44'N$, long. $72^{\circ}43'25''$, in

7000 feet wire).

Depth $2\frac{3}{5}$; head $2\frac{1}{4}$. Snout $3\frac{1}{2}$ in head from snout tip, its upper profile concave; eye 4, $1\frac{1}{8}$ in snout; maxillary reaches opposite hind eye edge, length $1\frac{9}{10}$ in head from snout tip; interorbital low. Preopercle edge with 4 spines rounding angle, front edge with 3 to 5 spines at corner, some minor spines above and below;

vol. 26, 1857, p. 5 (Nagasaki); Naturk.
 Tijdschr. Nederland. Indië, vol. 20,
 1859-60, p. 235 (Nagasaki); Act. Soc. Sci.
 Ind. Nederland., no. 3, vol. 3, 1857-58, p.
 3 (Kioesio), p. 5 (Japan).

? Dentex filiosus (not Valenciennes) Károli,
 Termesz. Füzetek, Budapest, vol. 5, 1881,
 p. 154 (Yokohama).

Depth $3\frac{1}{4}$ to $3\frac{4}{5}$; head $3\frac{1}{4}$ to $3\frac{4}{5}$,
 width $1\frac{7}{8}$ to $2\frac{1}{5}$. Snout $2\frac{3}{4}$ to 3 in
 head; eye $3\frac{1}{3}$ to $4\frac{3}{4}$, $1\frac{1}{5}$ to $1\frac{3}{4}$ in
 snout, greater than interorbital in young
 to subequal with age; maxillary reaches
 eye, expansion 2 to $2\frac{3}{5}$ in eye, length
 $2\frac{3}{4}$ to 3 in head; 4 to 8 small upper
 front canines, behind which band of
 villiform teeth and along sides of jaws
 outer slightly enlarged row which
 little lower than canines; lower
 jaw with narrow, short, front band

angular with ventral spine continuing posterior preopercular series; ventral edge of lower jaw with 3 minute spines in group before angular spine and with series of similar minute spines on anterior third. Gill rakers $6 + 14$.

Scales 29 in lateral line, enlarged; all missing, but scale pockets distinct; in thoracic region apparently incomplete.

D. VI, 9, soft fin height about $\frac{3}{4}$ in total head length; A. III, 9, soft fin height 3; caudal $1\frac{7}{8}$; least depth of caudal peduncle $4\frac{3}{5}$; pectoral 2, rays 14; ventral fin 5 in

Elera, Cat. Fauna Filipinas, vol. 1, 1895,
 p. 478 (Luzon; Manila). $\frac{1}{m}$ Ishikawa
 and Matsuura, Prelim. Cat. Fishes Mus.
 Tokyo, 1897, p. 53. $\frac{1}{m}$ Franz, Abhandl.^{Bayer.}
 Akad. Wiss., vol. 4, Supplement band 1,
 1910, p. 46 (Yokohama; Aburatsubo)..
Dentex sinensis Bleeker, Verhandel. Kon.
 Akad. Wetensch. Amsterdam, no. 3, vol. 13,
 1873, p. 25 (Nagasaki).
Hemipterus sinensis Jordan and Snyder,
 Annotat. Zool. Japon., vol. 1, 1901, p. 77
 (Yokohama and Nagasaki).
Dentex setigerus Valenciennes, Hist. Nat.
 Poiss., vol. 6, 1830, p. 253. Japan. $\frac{1}{m}$ Schlegel,
 Fauna Japonica, Poiss., pts. 5-6, 1844, p. 73,
 pl. 37, fig. 1 (Nagasaki). $\frac{1}{m}$ Richardson,
 Ichth. China Japan, 1846, p. 242 (Canton,
 China; Japan). $\frac{1}{m}$ Bleeker, Verhandel.
 Batavia. Genootsch., no. 4, vol. 25, 1853,
 p. 32 (Nagasaki); (Naleij. Ichth. Japan)

total head length.

183

Uniformly black. Length
31.5 mm. without caudal fin.
(Parr.)

Western North Atlantic.

31, 1913, p. 200, pl. 53; fig. 205, pl. 54, figs. 206-207, pl. 55, fig. 208 (Tokyo).

¹/_m Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus., 1920, p. 149 (Tokushima, Uwa).

Enthyopteroma virgatum Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 415

(Tokio, Kagoshima, Shimizu). (Error.)

Dentex virgatus Fowler, Proc. Acad.

Nat. Sci. Philadelphia, 1929 (1930), p. 609 (Hong Kong).

Sparus sinensis Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 46, 141. China.

Synagris sinensis Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 379 (China).

¹/_m Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, math.-naturwiss.

Classe, vol. 48, pt. 1, 1883, p. 17 (Tokio,

Tango, Kochi, Osima); vol. 49, pt. 1, 1885,

p. 261 (Kochi harbor in 40 fathoms). ¹/_m

Family Dirismidae

Body strongly compressed, deep, orbicular. Caudal peduncle slender, short. Head large, deep, compressed. Snout very short. Eye large, advanced. Mouth large, terminally superior, well inclined. Premaxillaries expanded behind. Preopercle prolonged downward, separating opercle from outer bones. Gill opening large. Pseudobranchiae present. Branchiostegals 7. Body and cheeks scaly. No lateral line. Long dorsal and anal with simple rays. Caudal emarginate. Pectoral moderate. Ventral small, thoracic.

One genus.

185

Genus Diectmus Johnson

Diectmus Johnson, Ann. Mag. Nat. Hist.,
vol. 14, p. 403, 1863, (Type Diectmus
argenteus Johnson, ~~April 20, 1864~~ monotypic.)
(not Fitzinger 1833)

Discus Campbell, Trans. New Zealand
Inst., vol. 11, p. 279, 1878 (1879). (Type
Discus aureus Campbell, ^{May} monotypic.)

Gyrionemus Vaillant, Exped. Sci.
Havaille et Talisman, Poiss., pp. 18,
35, 1888. (Type Gyrionemus nummularis
Vaillant, monotypic.)

Body short, elevated. Abdomen
prominent and beeled. Head moderate.
Eyes very large. Mouth wide, oblique,
lower jaw protruding. Maxillaries
end at upper and inner extremity in
pair of short-pointed extensions which
form peculiar fang-like projections on
inside of mouth before vomer. Bones
of head thin, with wide muciferous
cavities, lower limb of preopercle

denticulated. Body covered with small coarsely spinous scales, without lateral line. Dorsal long, without spinous division. Anal similar. Pectoral large. Ventral thoracic, with more than 5 rays, spine enlarged scalpel-shaped plate marked with numerous oblique striae.

Analysis of Species

a.¹ Scales 55 to 60 in median lateral series; body deep, depth $1\frac{1}{8}$ to $1\frac{1}{4}$. argenteus.

a.² Scales 80 in median lateral series; body longer, depth $1\frac{3}{4}$. oblongus.

forward opposite eye center, 4 rows on cheek to preopercle ridge and preopercle flange naked.

D. X, 9, third spine $2\frac{1}{3}$ in head, first ray $2\frac{1}{4}$; A. III, 6, I, third spine $2\frac{3}{4}$, first ray $2\frac{2}{5}$; lower caudal lobe 1, fin deeply forked with upper longer lobe ending in short filament; least depth of caudal peduncle $3\frac{1}{3}$; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{5}$.

Upper half of body pale violet. Very faint violet band from hind eye edge to caudal base and under half of band clear yellow or next to silvery edge of belly. narrow sulphur yellow band along upper edge of spinous dorsal. Ventral sulphur yellow basally. Length not given, but figure 150 mm. long. (Steindachner.)
Zanzibar, Seychelles.

Diectmus argenteus Johnson

Diectmus argenteus Johnson, Proc. Zool. Soc. London, p. 403, Pl. 36, fig. 1, 1863 (type locality, Madeira). — Günther,

Rep. Voy. Challenger, vol. 22, p. 45, 1887 (type). — Vaillant, Exped. Sci. Travailleur et Talisman, Poiss., p. 355, 1888 (off Morocco, 1105 meters). — Goode

and Bean, Oceanic Ichth., p. 211, pl. 65, fig. 234, 1895 (compiled). — McCulloch.

— Garnman, Mem. Mus. Comp. Zool., vol. 24, p. 384, 1899 (reference).

1 N., long. 11° 55' W., to 5000 meters). —

Waite, Rec. Canterbury Mus., vol. 1, no. 4, p. 320, December 28, 1912 (reference). —

Roule, Rés. Camp. Sci. Monaco, vol. 52, p. 52, 1919 (lat. 38° 35' N, long. 22° 57' 30" W, 2600 meters, east of Azores).

↑ — McCulloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 131, June 29, 1929 (reference).

E., 350 to 400 meters). V

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Dirotmus argenteus Johnson

Dirotmus argenteus Johnson, Proc. Zool. Soc. London, p. 403, Pl. 36, fig. 1, 1863 (type locality, Madeira). — Günther,

Rep. Voy. Challenger, vol. 22, p. 45, 1887 (type). — Vaillant, Exped. Sci. Travailleur et Talisman, Poiss., p. 355, 1888 (off Morocco, 1105 meters). — Goode

and Bean, Oceanic Ichth., p. 211, pl. 65, fig. 234, 1895 (compiled). — McCulloch, U.S. Rec. Austral. Mus., vol. 7, ^{no. 4} p. 320, ^{August 30,} 1909 (south east of Cape Howe, New South Wales).

— Jugmayer, Rés. Camp. Sci. Monaco, vol. 35, p. 107, pl. 5, fig. 7, 1911 (lat. $37^{\circ} 9' N.$, long. $11^{\circ} 55' W.$, to 5000 meters). —

Waite, Rec. Canterbury Mus., vol. 1, no. 4, p. 320, December 28, 1912 (reference). —

Roule, Rés. Camp. Sci. Monaco, vol. 52, p. 52, 1919 (lat. $38^{\circ} 35' N.$, long. $22^{\circ} 57' 30'' W.$, 2600 meters, ^{east of Azores}).

— Horman, Discovery Rep., vol. 2, Fishes, p. 342, 1930 (lat. $32^{\circ} 45' S.$, long. $8^{\circ} 47' W.$, 650 meters; lat. $33^{\circ} 50' S.$ to $34^{\circ} 13' S.$, long. $16^{\circ} 4'$ to $15^{\circ} E.$, 350 to 400 meters).

Tainia Jordan and Thompson, Proc. U. S.
Nat. Mus., vol. 41, 1912, p. 570. Type
Chrysophrys tumifrons Vehlegel, orthotyp

Synagris sundanensis Schmeltz, Cat. Mus.
Godffroy, no. 8, 1881, p. 5 (Indian Ocean).

189
— Roule and Angel, Rés. Camp. Sci.
Monaco, fasc. 79, p. 78, pl. 4, fig. 100,
1930 (west of Cape Verde, 1000
meters). — Parr, Bull. Bingham
Oceanogr. Coll., vol. 3, art. 6, p. 6,
fig. 2, December 1933 (lat. $21^{\circ}43'55''$
N., long. $72^{\circ}41'20''$ W., 3500 feet).

reaches $1/8$ in eye, expansion $2 1/8$ in eye, length $2 3/4$ in head; jaws equal; 6 upper front canines, pair of lower front canines or none; front of each jaw with band of villiform teeth and outer row of slightly enlarged teeth; interorbital low; preopercle edge minutely serrate; suborbital depth $1 2/3$ in eye.

Scales 50 in lateral line; 4 above, 8 below, predorsal extend forward $1/2$ in eye, 3 rows on cheek to preopercle ridge and flange naked.

D. X, 10, second spine 3 in head, first ray 2; A. III, 7, third ray $3 1/4$, first ray $2 3/4$; caudal $1 1/5$, emarginate, lobes pointed; least depth of caudal peduncle $2 7/8$; pectoral $1 1/5$; ventral $1 3/5$.

Above rosy, below rosy silvery. Iris yellowish or rosy. Body with 9 yellow-

? Discus aureus Campbell, Trans. New Zealand Inst., vol. 11, p. 298, fig. ¹⁸⁷⁸ (1879)
(type locality, Hobitika Beach).

Dirctmus aureus Günther, Rep. Voy. Challenger, vol. 22, p. 45, 1887 (copied).

— Waitte, Rec. Canterbury Mus., vol. 1, no. 1, p. 26, April 25, 1907 (reference).

Gyrionemus nummularis Vaillant, Expéd. Sci. Travailleur et Talisman, Poiss., pp. 18, 45, 1888 (type locality, (355)

Coast of Morocco, 1105 meters).

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 384, 1899 (reference).

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Depth $1\frac{1}{8}$; head $2\frac{1}{4}$. Snout
6 in head from snout tip; eye
 $2\frac{1}{5}$, greatly exceeds snout;
orbit 2 in head from snout
tip; maxillary very oblique,
reaches opposite hind orbital
edge, expansion equals eye,
length $1\frac{1}{3}$ in head from snout
tip; interorbital low.

Scales 60 in median lateral
series (figure shows about 54
of which last 4 apparently on
caudal base), 40 transversely
(figure shows about 50 between
dorsal and anal origins); 7
rows on cheek.

D. I, 26 or 27, first ^{branched} ray $3\frac{1}{8}$
in total head length; A. II or III,
19 to 21, first branched ray $6\frac{1}{4}$;
caudal $1\frac{3}{5}$, emarginate behind;

longest or $2\frac{1}{2}$ in head, longest (first) ray 2 (figure shows $2\frac{1}{3}$); ii. III, 7, third spine $3\frac{3}{4}$ (figure shows 4), longest (first) ray $2\frac{3}{4}$ (figure shows 3); least depth of caudal peduncle 3; pectoral $1\frac{1}{4}$; ventral $1\frac{1}{4}$; caudal forked, outer upper rays filiform, $2\frac{3}{5}$ in rest of body.

Yellowish. Wide brown band, slightly less in width than eye, from eye to middle of caudal. Yellowish above lateral brown band. Entire upper portion of back brown. Round dusky dot at hind end of lateral line. Snout dark brown. Slight trace of additional but very indistinct dusky band on upper sides of belly, fading out posteriorly. Fins all uniform yellowish white. Length

least depth of caudal peduncle $4\frac{1}{8}$; pectoral $1\frac{1}{3}$, rays II , 16; ventral I , 6, fin $2\frac{1}{2}$ in total head length.

Brown on back and head above. Sides and lower surfaces paler, with greenish and lilac shades. Iris dark brown. Mandible, maxillary and under surface of head paler. Fins all gray or pale. Length ^{about} 60 mm. (Zugmayer.)

Atlantic, Australia, New Zealand.

Can 129

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Synagris filiformis (Seale)

Dentex filiformis Seale, Philippine Journ.

Sci., vol. 4, no. 6, 1909, p. 512, pl. 9.

Surigao, Mindanao.

Depth $4\frac{1}{3}$; head $3\frac{3}{4}$, width $1\frac{4}{5}$.

Snout $3\frac{1}{10}$ in head; eye 3, subequal with snout and interorbital; maxillary not quite reaching opposite eye, length 3 in head; curved canines in each jaw, fourth anterior upper largest, with patches of inner villiform teeth anteriorly; interorbital 3. Gill rakers 4 below, short, thick asperities.

Scales 47 in lateral line; 3 above, 16 below, in horizontal rows on upper third of body and oblique rows below; 5 rows on cheek (6 on figure to preopercle ridge and flange naked).

D. X, 9, fourth and fifth spines

Family Melamphaidae

197

Body variably deep or elongate, compressed. Head large, more or less robust, compressed. Snout short. Eye moderate or large, advanced. Mouth protractile, moderate or large. Gills 4. Basal bones separate. No orbitosphenoid. Dorsal and anal with few, slender, graduated spines. Caudal with 19 principal rays, 17 of which branched, precurrent rays spinous. Ventral thoracic, with slender spine and 6 to 9 soft rays.

Deep sea fishes in the Atlantic, Indian and Pacific Oceans.

Analysis of Genera

a.¹ Teeth in bands; scales moderate or large.

b.¹ Ventral rays 6 to 10.

c.¹ Teeth cardiform, on premaxillaries and lower jaw only.

Poromitra.

c.² Teeth in narrow single or double rows in jaws.

Melamphaes.

b.² Ventral rays 5; narrow band of villiform teeth in both jaws.

Malacosarcus.

a.² Teeth irregular, villiform, with 2 pairs of long, fang like canines above and 3 below.

Caulolepis.

Scales 50 in lateral line, 3 above, 10 below, predorsal scales extend forward opposite eye center, 3 rows on cheeks with broad naked preopercle flange.

D. X, 9, II, third spine $2\frac{1}{2}$ in total head length, first ray 2; A. III, 7, I, third spine $2\frac{7}{8}$, first ray $2\frac{3}{5}$; caudal $1\frac{1}{5}$, deeply emarginate; least depth of caudal peduncle 3; pectoral $1\frac{1}{5}$; ventral $1\frac{1}{2}$.

Above rosy, below silvery rosy. Iris yellow and rosy. Fins rosy. Dorsal with submarginal violaceous narrow band, edge narrowly yellowish. Anal with silvery or yellow band from bases of spines to tip of last ray.

Length 165 mm.

(Bleeker.)

East Indies. Known by its coloration, the body without bands.

199

Genus Poromitra Goode and Bean

Poromitra (Goode and Bean), Bull. Mus. Comp. Zool., vol. 10, p. 214, 1882. (Type Poromitra capito Goode and Bean, monotypic.)

Body compressed, tapering back to slender caudal peduncle. Head very large, well compressed. Snout moderate. Eye moderate, well advanced. Mouth large, lower jaw protruding. Upper jaw edge formed of long maxillary and short premaxillary. Teeth very small, cardiform on premaxillary and lower jaw only. Opercles complete. Gill opening very wide. Gill rakers slender. Pseudobranchiae present. Dorsal median in body, origin not far behind ventrals, spinous and soft parts equal. Anal much shorter than dorsal, inserted posteriorly below soft dorsal. Pectoral long. Ventral inserted before pectoral, long, though shorter than pectoral.

200

Bathypelagic. Scarcely different
from Melamphaës, from which it
seems to differ chiefly in its greatly
narrower, compressed head.

- Weber, Siboga Exped., band ~~65~~⁵⁷, 1913, p. 317
(Karabekang, Gisser, Binongka, Musa
Laut, Tiur, Rotti). — Pearson, Ceylon.
Admin. Rep. Marine Biol., 1914, p. F 7.
- Ctenodon lineatus Swainson, Nat. Hist. An.,
vol. 2, 1838, p. 333 (in Bennett).
- Harpurus lineatus Lichtenstein, Descript.
Animal. Forster, 1844, p. 216 (Indies).
- Rhombotides lineatus Bleeker, Ned. Tijds.
Dierk., deel 1, 1863, p. 270 (Atapupu, Minor).
— Bleeker, Verslag. Alaad. Wet. Amsterdam,
deel 16, 1864, p. 368 (Aru Island, Moluccas);
deel 2(2), 1868, p. 276 (Batjan).
- Hepatus lineatus Jordan and Richardson,
Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 270
(Cagayanillo).

201

Poromitra capito Goode and Bean

Poromitra capito Goode and Bean, Bull.
Mus. Comp. Zool., vol. 10, p. 215, 1882
(type locality, lat. $34^{\circ}28'25''N$, long. 75°
 $22'50''W$, 1632 fathoms).

Port. U. S. Nat. Mus., vol. 10, p. 215, 1882

— Günther, Rep. Voy. Challenger, vol. 22, p. 35,
1887 (reference).

— Goode and Bean, Oceanic Ichth., p. 183,
pl. 53, fig. 200, 1895 (copied). — Jordan and
Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1,
p. 840, 1896 (copied). — Garman, Mem.

Mus. Comp. Zool., vol. 24, p. 384, 1899
(reference). — Brauer, Deutsch. Tiefsee
Expd. Valdivia, vol. 15, Tiefsee Fische,
p. 396, 1906 (reference).

Depth $3\frac{1}{2}$; head $2\frac{1}{3}$, width $3\frac{1}{3}$.

Snout 4 in head from snout tip; eye $5\frac{1}{2}$, $1\frac{1}{5}$ in snout, equals interorbital; maxillary reaches opposite hind eye edge, length 2 in head from snout tip; interorbital $5\frac{1}{2}$, convex. Gill rakers $5 + 13?$, lanceolate, equal eye, about twice long as gill filaments.

Scales (pockets) $24?$ in axial lateral series, $10?$ transversely, $10?$ predorsal forward to occiput.

Scales all fallen.

D. VII, 6, fin origin median (rays all broken); A. 9, begins below last fourth of dorsal fin base, rays all low; caudal

and A500.

936

A499, Balukbaluk Island. September

12, 1909. Length 290^{to 305} mm.

A557. Buluan Island. September 13,

1909. Length 295 mm.

8457. Cagayanes Island. March

31, 1909. Length 334 mm.

A1534 and 1462. Doc Cui Island. January 7, 1910. Length 138 to 270 mm.

7498 and 9255. Endeavor Strait,

Malampaya Sound, Palawan Island.

December 22, 1908. Length 220 to 250 mm.

Very dark purplish slate, with numerous narrow purple stripes. Fins not banded.

8221, 8222, 8252. Cagayanes Island,

Length 238 to 383 mm.

Ragay Gulf, Luzon. March 9 - 14, 1909.

9915. Inamuan Bay, Mindanao.

August 8, 1909. Length 140 mm.

6948. Jolo Market. May 31, 1908.

Length 80 mm.

(damaged)?; least depth of caudal peduncle 5 in total head, $2\frac{1}{3}$ in its own length; pectoral $1\frac{7}{8}$ in total head, reaches anal?; ventral inserted before pectoral, length 2 in total head or reaches $1\frac{3}{5}$ to anal origin.

Brown. Head blackish brown, especially below. Iris slate gray. Inside gill opening black. Fins brown.

Western Atlantic.

U. S. N. M., no. Locality unknown. Blake Collection. Length 38 mm, caudal end broken.

943

Hepatus bariene (Lesson).

Acanthurus bariene Lesson, Voy. Cochin, Zool.,
vol. 2, 1830, p. 150. Offack Bay, Waigiu.

? Acanthurus argenteus Duoy and Gaimard, Voy.
Uranie, Zool., 1824, p. 372, plate 63, fig. 2.

Guano. (young.) — Valenciennes, Hist. Nat. Poiss.,
vol. 10, 1835, p. ²³⁹176 (Hawaii and Mariannes).

Acanthurus argenteus Günther, Cat. Fish. Brit. Mus.,
vol. 3, 1861, p. 346. — Klunzinger, Verh. zool.
bot. Ges. Wien, band 21, 1871, p. 510 (Koseir, Red Sea).

Xenopus argenteus Jordan and Fowler, Proc. U.S.
Nat. Mus., vol. 25, 1902, p. 553 (Akimawa, Umesawa,
Misaki).

Acanthurus dussumieri Valenciennes, l.c., p. ²⁰¹177.
Mauritius. — Günther, Cat. Fish. Brit. Mus.,
vol. 3, 1861, p. 335 (copied). — Günther, Journ.
Mus. Godeffroy, band 4, 1875, p. 112, plate 72.

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Genus Melamphaes Günther

Melamphaes Günther, Cat. Fish. Brit. Mus., vol. 5, p. 435, 1864. (Type Metopias typhlops Lowe, monotypic.)

Metopias (not Gory 1832) Lowe, Proc. Zool. Soc. London, ^{vol. 11,} p. 90, 1843. (Type Metopias typhlops Lowe, monotypic.)

Plectromus Gill, Proc. U. S. Nat. Mus., vol. 6, p. 257, 1883. (Type Plectromus suborbitalis Gill, monotypic.)

Scopelogadus Vaillant, Exped. Sci. Travailleur et Talisman, Poiss., p. 140, 1888. (Type Scopelogadus cocles Vaillant, monotypic.)

Lophocephalus Osorio, Journ. Sci. Math. Phys. Nat. Lisbon, ser. 2, vol. 7, no. 27, p. 173, 1906. (Type Lophocephalus anthrax Osorio, monotypic.)

Poromitrella Zugmayer, Bull. Inst. Océan. Monaco, no. 193, p. 7, January 20, 1911. (Type Poromitrella nigriceps Zugmayer, monotypic.)

Scopeloberyx Zugmayer, Bull. Inst. Océan. Monaco, no. 193, p. 8, January 20, 1911. (Type Scopeloberyx opercularis Zugmayer, monotypic.)

Body moderately elongate, little compressed. Caudal peduncle long, robust. Head large, robust, outer bones forming wide muciferous cavities. Eye moderate, advanced. Mouth moderate, oblique, jaws subequal. Teeth very small, villiform, uniserial to several series in each jaw. Palate toothless. Opercles unarmed. Pseudobranchiae present. Branchiostegals 7 or 8. Scales moderate or very large, cycloid, rather irregularly arranged, deciduous. No lateral line. One dorsal

with 2 or 3 slender, graduated spines and 9 to 18 soft rays. Anal usually inserted below last dorsal rays, with 1 or 2 spines and 7 to 10 rays, fin origin below or behind dorsal. Caudal forked, with 19 principal rays of which 17 branched and procurent rays spinous. Pectoral long. Ventral thoracic, with slender spine and 7 soft rays.

Bathypelagic. The key given below is largely modified from Parr 1933.

Analysis of Species

a.¹ Scales less than 20 in longitudinal series.

b.¹ Head $2\frac{1}{2}$ to little over 3; eye less than 8.

c.¹ Front profile strongly arched; head depth at vertical preopercle ridge $1\frac{1}{5}$ to $1\frac{1}{4}$ in head length; snout $4\frac{2}{3}$ to 5 in head; eye $4\frac{1}{2}$ to $5\frac{1}{2}$. beanii.

c.² Front profile angular; head depth at vertical preopercle ridge $1\frac{1}{2}$ to $1\frac{3}{4}$ in head length; snout $3\frac{1}{2}$ to $4\frac{1}{2}$ in head; eye $5\frac{1}{5}$ to $7\frac{3}{4}$. mizolepis.

b.² Head 2 to $2\frac{1}{3}$; eye 8 to 9; snout $3\frac{1}{2}$ to $4\frac{1}{2}$ in head.

bispinosus.

a.² Scales more than 20 in longitudinal series.

¹²⁹ Synagris isacanthus (Bleeker)
Dentex isacanthus Bleeker, Verhandel.
 Kon. Akad. Wetensch. Amsterdam, no. 3,
 vol. 13, 1873, p. 13. Batavia, Java;
 Padang, Sumatra; Atlas Ichth. Ind.
 Néerland., vol. 8, 1876-77, p. 85, pl. (67)
 345, fig. 4 (Java and Sumatra). $\frac{1}{2}$
Fowler, Proc. Acad. Nat. Sci. Philadelphia,
 1927, p. 284 (Orion).

Synagris isacanthus Boulenger, Proc.
 Zool. Soc. London, 1889, p. 238 (Muscat). $\frac{1}{2}$
Jugmayer, Abhandl. Kon. Bayer. Akad.
 Wiss., math.-physik. Klasse, vol. 26,
 band 6, 1913, p. 11 (Oman).

Hemipterus isacanthus Jordan and Seale,
 Proc. U. S. Nat. Mus., vol. 28, 1905, p. 781
 (Negros).

d. no internasal spine;
anal origin below last 2 or 3
dorsal rays or more posterior.

e. Dorsal rays 17 to 21 (II or
III, 14 to 18).

f. Lower gill rakers 13 to 17;
anal origin below or close
behind last dorsal ray.

g. Head $2\frac{2}{3}$ to $3\frac{1}{5}$; eye 5 to
 $6\frac{3}{4}$ in head; D. III, 15 to 18;
ventral origin below or
little behind pectoral base.

microps.
g.² Head $2\frac{1}{2}$; eye 6 to $6\frac{1}{2}$ ^{in head}, $1\frac{1}{2}$ ^{in snout};
ventral origin little
before pectoral base. lugubris.

g.³ Head 2 to $2\frac{1}{3}$; eye $8\frac{2}{5}$ to
 $9\frac{2}{5}$ ^{in head}, 2 to $2\frac{1}{5}$ in snout. macrocephalus.

f.² Lower gill rakers 8 or 9; anal
origin well behind last dorsal

11443. Manila market. December
12-18, 1907. Length 119 mm.

A 1011. Data? Length 129 mm.

ray; head $3\frac{1}{5}$.

typhlops.²⁰⁹

e.² Dorsal rays 12 to 15 (II or III, 9 to 12).

h.¹ D. II or III, 11 or 12; eye 8 to 11 in head; maxillary reaches beyond eye.

i.¹ Head $2\frac{2}{5}$ to $2\frac{4}{5}$.

j.¹ Ventral origin behind pectoral base; snout $3\frac{1}{2}$ to 4 in head; eye 8 to 11. robustus.

j.² Ventral origin below or close behind pectoral base; snout $3\frac{2}{3}$ in head; eye 11. nigrescens.

i.¹ Head 3 to $3\frac{1}{2}$. opisthopterus.

h.² D. III, 9; eye $4\frac{4}{5}$ to $5\frac{1}{2}$ in head; maxillary reaches $\frac{1}{2}$ in eye or little beyond. nordenskjöldi.

d.² Internasal spine present; anal origin below hind half of dorsal.

h.¹ Ventral origin little before pectoral base.

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D. X, 9, II, fourth spine $1\frac{4}{5}$ to 2 in head, first ray $2\frac{1}{5}$; A. III, 7, I, third spine $2\frac{4}{5}$ to $2\frac{7}{8}$, first ray $2\frac{1}{5}$ to $2\frac{2}{5}$; caudal 1, deeply forked, slender. lobes pointed and upper little longer but not filamentous; least depth of caudal peduncle $2\frac{4}{5}$; pectoral $1\frac{2}{5}$ to $1\frac{1}{2}$; ventral $1\frac{1}{5}$ to $1\frac{1}{4}$.

Back brown, with lilac reflections, till level with body axis, below distinctly contrasted whitish. Whole body with silvery white sheen. Iris pale yellowish, with neutral shades. Fins all uniformly pale brownish.

East Indies, Philippines. My examples agree with Bleeker's figure, especially in the narrow preorbital, depth of which above maxillary expansion $2\frac{1}{10}$ to $2\frac{1}{5}$ in eye.

l.¹ Caudal peduncle depth $4\frac{1}{2}$ to $4\frac{1}{2}$ in its length; eye $3\frac{1}{2}$ to $3\frac{3}{4}$ in head.

megalops.

[l.² Caudal peduncle depth 2 to $2\frac{1}{2}$ in its length; eye $8\frac{1}{2}$ to $9\frac{1}{2}$ in head. macrocephalus.]

h.² Ventral origin below or little behind pectoral base; caudal peduncle depth $2\frac{1}{4}$ to 3 in its length.

m.¹ D. III, 12 to 15, origin nearer snout end than caudal base; interorbital $3\frac{1}{4}$ to $3\frac{1}{2}$ in head.

n.¹ Eye 7 to $8\frac{1}{2}$ in head; maxillary reaches little beyond eye.

o.¹ Head $2\frac{2}{5}$ to $2\frac{2}{3}$; last dorsal ray behind middle of anal fin base; caudal peduncle depth $2\frac{1}{2}$ to $2\frac{2}{3}$ in its length. cristiceps.

o.² Head $2\frac{7}{8}$ to 3; last dorsal ray little before middle of anal fin base; caudal peduncle depth

front canines and median on each mandibular ramus; interorbital $3\frac{4}{5}$ to $4\frac{1}{3}$, nearly level or with broad median depression; preopercle edge entire, flange with rather few small venules; opercle ends in broad blunt spine. Gill rakers $4+6$, short, tubercle like, $\frac{1}{3}$ of gill filaments, which $2\frac{1}{8}$ in eye.

Tubular scales 44 to 46 in lateral line to caudal base and 2 more on latter; 4 above, 10 below, 13 predorsal forward till opposite eye center, 3 rows on cheeks to preopercle ridge. Suprascapula membranous, edge roughened. Scales with 6 to 8 basal radiating striae; 40 to 44 apical denticles, minute feeble points, with 3 or 4 transverse series of basal elements; circuli very fine.

3 in its length. crassiceps.²¹¹

n.² Eye $5\frac{2}{3}$ to $6\frac{1}{5}$ in head;
maxillary reaches $\frac{3}{4}$ in eye;
head nearly 3; caudal peduncle
depth nearly 3 in its length.

atlanticus.

m.² D. III, 10 to 12, origin little
nearer caudal base than snout
end; head $2\frac{1}{4}$ to $2\frac{1}{2}$; caudal
peduncle depth $2\frac{1}{3}$ to $2\frac{1}{2}$ in its
length.

p.¹ Eye 6 in head; interorbital
3 or less. nigrofulvus.

p.² Eye 7 in head; interorbital
 $4\frac{2}{3}$. unicornis.

m.³ D. III, 10 or 11, origin nearer
snout end than caudal base;
each frontal crest with forward
protruding spine; head $2\frac{1}{4}$ to
 $2\frac{3}{5}$; caudal peduncle depth
 $2\frac{1}{3}$ in its length. triceratops.

Cm 129

Synagris metopias (Bleeker)

Uentex metopias Bleeker, Act. Soc. Sci. Ind. Néerland. (Amboina), vol. 2, 1857, p. 51. Amboina; Atlas Ichth. Ind. Néerland., vol. 7, 1873-76, pl. (42) 320, fig. 5; vol. 8, 1876-77, p. 87 (Amboina).
Synagris metopias Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 376 (compiled).
Hemipterus metopias Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 22 (Cavite).

Depth $3\frac{3}{4}$ to $3\frac{4}{5}$; head $3\frac{1}{3}$ to $3\frac{3}{5}$, width $1\frac{4}{5}$ to $2\frac{1}{10}$. Snout $2\frac{7}{8}$ to $3\frac{1}{5}$ in head; eye $3\frac{1}{8}$ to $3\frac{1}{5}$, equals snout, little greater than interorbital; maxillary reaches $\frac{1}{8}$ in eye, expansion $3\frac{1}{5}$ to $3\frac{2}{3}$ in eye, length $2\frac{2}{3}$ to $2\frac{7}{8}$ in head; teeth in narrow villiform bands in jaws, with outer row slightly enlarged, also 8 upper

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Melamphaes beanii Günther

Melamphaes beanii Günther, Rep.
Voy. Challenger, vol. 22, p. 29, 1887
(Based on Bean); — Norman, Ann.

Mag. Nat. Hist., ser. 10, vol. 4, p. 166,
August 1929 (type of Melamphaes
euylepis, Melamphaes beanii,
Scopelogadus coelestis; lat. 15° to 35° S.,
long. 6° to 16° E. and long. 19° W., to 2739
meters); Discovery Rep., vol. 2,
Fishes, p. 346, 1930 (above South
Atlantic materials). — Parr, Bull.
Brigham Oceanogr. Coll., vol. 3, art. 6, p.
24, fig. 11, December 1933 (British Museum
specimen from lat. $15^{\circ}55'S$, long. $10^{\circ}35'E$,
600 to 1000 meters).

— Garman, Mem. Mus. Comp. Zool., vol.
24, p. 383, 1899 (reference).

Melamphaes beanii Brauer, Deutsch. Tiefsee
Expd. Valdivia, vol. 15, Tiefsee Fische, p. 279,
1905 (diagnosis in key), p. 395 (reference).

k.² Fins uniform yellowish white.

filiformis.

d.⁴ Several yellow longitudinal bands on body,
not on head.

m.¹ Preorbital depth greater than eye;
fins uniform pink. hypselognathus.

m.² Preorbital depth subequal with
eye.

Plectromus beani Goode and Bean,
Oceanic Ichth., p. 179, pl. 54, fig.
202, 1895 (lat. 37° to 42° N., long.
 20° to 73° W., 578 to 1769 fathoms).
— Jordan and Evermann, Bull.
U. S. Nat. Mus., no. 47, pt. 1, p.
842, 1896 (copied).

Plectromus beani Jordan, Evermann,
Clark, Rep. U. S. Comm. Fisher., 1928
(1930), pt. 2, p. 233 (reference).

Plectromus crassiceps (not Günther)
Bean, Proc. U. S. Nat. Mus., vol. 8, p.
73, 1885 (1886) (type locality, lat.
 $37^{\circ}12'20''$ N., long. $69^{\circ}39'$ W., 2949
fathoms; lat. 37° to 41° N., long. 65° to 73°
W., 855 to 1497 fathoms).

u.² body uniform, rosy, except
upper half of dorsals, which
yellow. mulloides.

eye 13
nose
only

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Scopelogadus cocles Vaillant, Expéd. Sci.
Travailleur et Talisman, Poiss., p.
143, pl. 26, 1888 (type locality, Banc
d'Arguin, 1090 to 1250 meters; off
Cape Verde Islands, 3655 meters). —
Goode and Bean, Oceanic Ichth., p. 182,
1895 (copied).

Melanophaes cocles Garman, Mem.
Mus. Comp. Zool., vol. 24, p. 383,
1899 (reference). — Brauer, Deutsch.
Tiefsee Exped. Valdivia, vol. 15,
Tiefsee Fische, p. 279, 1905 (diagnosis
in key), p. 395 (reference).

Scales 48 in lateral line to caudal base and 8 more on latter; 4 above, 12 below, 15 predorsal forward opposite eye center, 3 rows on cheeks to preopercle edge and flange naked. Scales with 5 or 6 basal radiating striae, 55 to 126 low conic apical points, with 1 to 4 transverse series of basal elements; circuli fine.

D. X, 9, I, spines flexible terminally and membranes entire marginally, fourth spine $2\frac{4}{5}$ in total head length, first ray $2\frac{3}{4}$, last ray $3\frac{1}{3}$; A. III, 7, I, third spine $3\frac{3}{4}$, first ray $3\frac{1}{5}$; caudal (damaged) $1\frac{1}{4}$ on figure, forked, lobes rather broad and pointed; least depth of caudal peduncle $3\frac{1}{4}$; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{5}$.

Back pale brown, sides and below still paler to whitish. Iris pale

Melamphaes eurylepis Holt and Byrne,
Fish. Ireland Sci. Investig., vol. 2,
1905, p. 19, pl. 1, figs. 1-2 (1906) (type
locality, Irish Atlantic Slope).

? Melamphaes mizolepis (not Günther)
Zugmayer, Rés. Camp. Sci. Monaco,
Boll. 35, p. 96, pl. 5, fig. 1, 1911 (lat.
40° to 44° N., long. 11° to 15° W., 2000 to
4992 meters).

Depth $3\frac{1}{5}$ to $3\frac{1}{2}$; head 3 to $3\frac{1}{8}$,
width $1\frac{2}{3}$ to 2. Snout 3 to $3\frac{2}{3}$ in head;
eye $5\frac{1}{2}$ to $6\frac{2}{5}$, $1\frac{3}{4}$ to $1\frac{4}{5}$ in snout,
 $2\frac{7}{8}$ to 3 in interorbital; maxillary
reaches $\frac{1}{2}$ in eye or till opposite
hind eye edge, length 2 to $2\frac{1}{5}$ in
head; teeth minute, villiform,
uniserial in jaws; interorbital 2 to $2\frac{1}{5}$,
convexly elevated. Gill rakers 5 + 16
to 18, robust, compressed, 2 in eye;
gill filaments $\frac{3}{4}$ - gill rakers.

Scales 13 to 15 in lateral series,
4 or 5 transversely, 7 predorsal
to occiput. Scales all fallen so
count according to pockets.

D. II or III, 10 or 11, fin
height 2? in total head length;
A. I or II, 7 or 8, origin below
last fifth to $\frac{2}{5}$ of dorsal base,
second branched ray $1\frac{4}{5}$ to 2 in
total head; caudal (damaged)
 $1\frac{1}{5}$; least depth of caudal
peduncle 3 to $3\frac{3}{4}$ in its own
length or $2\frac{4}{5}$ to $3\frac{3}{4}$ in total
head length; pectoral 1 to $1\frac{1}{5}$,
rays 14 or 15; ventral I, 7, fin
 $2\frac{1}{8}$ to 3? in total head.

Brownish, scale pockets
dusky. Head pale gray.
Inside mouth black. Iris gray.

pale blotches, due to torn areas in the thin skin. Fins all bordered broadly with whitish. Iris slaty. Lower surface of body especially with dusky to blackish brown dots, distinct under a lens, also showing less so and sparsely over back. Length 215 mm.

Type, No. 51585 U. S. National Museum.

Fins pale brown, caudal dusky
basally.

North and South Atlantic.

Reaches 135 mm.

Centrocyllium ruscosum Gilbert

Head $3 \frac{1}{3}$ to origin of lower caudal lobe; depth $5 \frac{1}{3}$; abdominal cavity $2 \frac{3}{5}$ in entire length measured from chin.

Body little compressed, tapering and slender posteriorly. Head depressed, width $1 \frac{1}{3}$ its length. Snout soft, pliable, depressed, length $\frac{3}{5}$ its width. Eye large, little advanced, $\frac{1}{2}$ of interorbital. Mouth width half of head, short labial fold around angle. Teeth in 40 rows above, fewer or about 44 rows below, tricuspid and median cusp largest. Nostrils large, length $\frac{2}{3}$ horizontal eye diameter, internasal space half of mouth. Interorbital broad, depressed. Gill-opening $\frac{1}{2}$ of eye. Spiracle superior, close behind eye, length $2 \frac{1}{2}$ in eye.

Body largely smooth, only scattered, small, inconspicuous, sparse, short filaments, only visible under a lens. First dorsal inserted well behind pectoral base, spine $1 \frac{2}{3}$ in spine of second dorsal. Second dorsal larger, spine $1 \frac{1}{4}$ in interorbital. Subcaudal lobe nearly large as second dorsal, not hollowed out or cut concavely as shown in Gilbert's figure. Pectoral long as first dorsal and not foreshortened as shown in Gilbert's figure. Ventral moderate, its base entirely before second dorsal.

Color in alcohol dark brown, lower half or more of body darker, so belly much darker than back. Sides and back, also top of head, with variable

U. S. N. M., No. 33378. Lat.
 $41^{\circ}40'30''$ N., long. $65^{\circ}35'$ W.
 In 855 fathoms. September 3, 1883.
Albatross Collection 2075. Length
 123 mm. Cotype of Plectromus
crassiceps J. H. Bean and
melamphaes beanii Günther.

U. S. N. M., No. 33509. Lat. $39^{\circ}44'30''$
 N., long. $71^{\circ}4'$ W. In 1022 fathoms.
 September 21, 1883. Albatross
 Collection 2094. Length 113? mm.
 Cotype of P. crassiceps and m. beanii.

U. S. N. M., No. 33553. Lat. 37°
 N., long. 69° W. In 2949 fathoms.
Albatross Collection.
 Length 35 mm [48 given by J. H. Bean].
 Cotype of P. crassiceps and m. beanii.

Catulus spengiceps Gilbert

Head $3 \frac{1}{4}$ to origin of lower caudal lobe; depth $3 \frac{3}{4}$; abdominal cavity little over $\frac{1}{4}$ entire length measured from under chin.

Body compressed, rather deep. Head depressed, width $1 \frac{3}{4}$ its length. Snout very pliable, flabby, depressed. Eye small, median in profile. Mouth width $\frac{1}{2}$ of head length and both labial folds long as eye. Teeth in 36 rows in each jaw, each tooth with 3 to 5 cusps. Nostrils large, little longer than eye, internasal space $\frac{1}{2}$ of mouth width. Interorbital broadly convex. Gill-opening little less than eye. Spiracle small, distinct, close behind eye.

Skin densely covered with small, simple cusps, mostly finely roughened to touch; fin edges and with areas of depression behind naked. First dorsal inserted largely over ventral bases. Second dorsal larger than first, inserted over middle of anal and ending slightly behind end of anal, not "terminating slightly in advance of its end" as Gilbert states. Caudal with notch near end and subcaudal equal with anal. Pectoral base half length of fin. Ventral broad, much smaller than anal.

Color in alcohol dull gray brown, with traces of sepia brown tints across thorax, on gills, fin edges and fin depressions. Length 482 mm.

Known only from the type, No. 51590 U. S. National Museum.

U. S. N. M., No. 34835. Lat. $37^{\circ}41'20''$
N., long. $73^{\circ}3'20''$ W. In 1497 fathoms.
November 6, 1883. Albatross Collection
2106. Type (holotype) of m.
beani and Plectromus crassiceps.

U. S. N. M., No. 35412. Lat. 39° N,
long. 71° W.
Albatross Collection
Length 127.7 mm.

U. S. N. M., No. 35522. Lat. 39° N,
long. 70° W.
Albatross Collection
2215. Specimen on exhibition.

U. S. N. M., No. 35533. Lat. 39° N,
long. 71° W.
Albatross Collection.
Length 128 mm?

U. S. N. M., No. 39245.
Albatross Collection
Length 103? mm.

8689. Batag Island. June 3, 1909.

Length 353 mm.

7803, 7804, 7806 & 7808. Bugruka
January 5, 1909.

Island. Length 270 to 370 mm.

(7803, 7804, 7806.) Numerous narrow

undulating slaty blue stripes, interspaces
golden brown. Yellow brown blotch
about eye, two sides not quite meeting.

Many very distinct undulating slaty
lines on side of head. Opercle flap
black. Dorsal yellow-carmine, -orange

anteriorly, smoky purple posteriorly;
narrowly edged dark blue; traces of

3 or 4

narrow blue lines on posterior portion

terminally. Slaty blue stripes nearly
pupil breadth at dorsal base and
below-brown stripe parallel.

U. S. N. M., No. 44459.

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Length 67? mm.

Albatross Collection

U. S. N. M., No. 44613. Lat. 40° N,
long. 67° W. In 1356 fathoms.

2571. Length 120? mm.

Albatross Collection

U. S. N. M., No. 83836.

Length 59? mm.

Albatross Collection 2683.

U. S. N. M., No. 83885.

Length 135 mm.

Albatross Collection 2730.

U. S. N. M., No. 83886.

Length 130 mm.

Albatross Collection 2715.

U. S. N. M., No. 84502.

Length 39? mm.

Albatross Collection 2717.

Anal like dorsal. Caudal fades whitish. Ventral blackish terminally, membranes hyaline and scattered small, orange, basal spots, rays probably black in life.

21118. Cape Kait, Libani Bay, Celebes.
December 29, 1909. Length 130 mm.

20671. Ladaa Island, Celebes.
November 17, 1909. Length 143 mm.

13634. Una Una Road, Binang Buang.
Island, Celebes. November 18, 1909.

Length 70 mm.

A1581 and A1582. Yoo Wan, Eastern
Formosa. January 29, 1910. Length 228 to
233 mm.

12035 to 12039. Apra Bay reefs, Guam.
November 19 to 21, 1907. Length 145 to 185 mm.

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Melamphaes mizolepis (Günther)

Scopelus mizolepis Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 185, 1878 (type locality, South of New Guinea and off Arroe Island, 800 fathoms).

Melamphaes mizolepis Günther, Rep. Voy. Challenger, vol. 22, p. 28, 1887 (type from off Aru Island, lat. $5^{\circ}41'$ S., long. $134^{\circ}4'30''$ E., 800 fathoms). — Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 201, 1890 (Bengal Bay, 1310 fathoms).

— Goode and Bean, Oceanic Ichth., p. 178, 1895 (reference). — Alcock, Journ. Asiatic Soc. Bengal, vol. 65, ^{pt. 2,} p. 314, 1896 (reference);

Descript. Cat. Fish. Indian Mus., p. 37, 1899 (off Ganjam, 1310 fathoms). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 62, 1899 (lat. 1° to 7° N., long. 79° to 81° W., 546 to 1168 fathoms), p. 383 (reference).

— Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Fische, p. ⁽²⁷⁹⁾ 280, pl. 13, fig. 1, 1906 (off Sierra Leone, 3070 meters; Gulf of

Guinea, 2000 to 3000 meters;
off Southwest Africa, 4000 meters;
off west Sumatra 1100 meters;
Bengal Bay, 2500 meters; Seychelles,
1500 meters), p. 395 (reference).

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Cne 179 *Synagris petersii* (Steindachner)
~~*Heterognathodon petersii* Steindachner,~~
Sitz. Ber. Akad. Wiss. Wien, vol. 49, pt. 1,
1864, p. 203, pl. 1, fig. 2. Zanzibar. $\frac{1}{m}$
Playfair, Fishes of Zanzibar, 1866, p. 30
(copied). $\frac{1}{m}$ Sauvage, Hist. nat. Madagascar,
Poiss., 1891, p. 185 (Seychelles).

Depth $4\frac{3}{5}$; head $3\frac{1}{4}$. Snout $3\frac{1}{2}$ in head; eye $3\frac{1}{10}$, little greater than snout or interorbital; maxillary reaches $\frac{1}{5}$ in eye, expansion 3, length $2\frac{1}{2}$ in head; 6 to 8 large front upper canines, also some smaller canines in front of lower jaw but shorter than upper ones; interorbital $\frac{2}{3}$ of eye, apparently nearly level; hind preopercle edge finely serrated; suborbital depth $\frac{1}{3}$ of head.

Scales 47 of which 4 on caudal base; 4 above, 11 below. Predorsal extend

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— Roule, Rés. Camp. Sci. Monaco, vol. 52, p. 44, 1919 (Cape Finisterre, 3500 meters).

— Fowler, Mem. Mus. Camp. Zool., vol. 10, p. 96, 1928 (compiled). — Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 263, fig. 70, 1929 (compiled). — Horman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 168, August 1929 (type; lat. 13° N. to 5° S., long. 00° to 18° W. and 134° E., 125 to 1464 meters); Discovery Rep., vol. 2, Fishes, p. 347, 1930 (lat. 5° S. to 18° N., long. 5° to 11° E. and 00° to 14° W., to 950 meters).

— Roule and Angel, Rés. Camp. Sci. Monaco, vol. 86, p. 66, 1933 (lat. $44^{\circ}24'$ N., long. $11^{\circ}36'$ W., 4900 meters, near Belle Ile). — Zugmayer, Rés. Camp. Sci. Monaco, vol. 86, p. 83, 1933 (Fajal, 3500 to 4500 meters; Sao Jorge, 2000 to 4000 meters; George's Bank, 1000 to 2500 meters).

— Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 22, fig. 10, December 1933 (lat. 21° to 32° N., long. 64° to 77° W., 7000 to 10000 feet).

71 to 140 apical denticles, with 6 to 10 transverse series of basal elements; circuli fine.

D. X, 9, I, fifth spine $2\frac{2}{5}$ to $2\frac{2}{3}$ in head, fifth ray $2\frac{1}{4}$ to $2\frac{2}{3}$; A. III, 7, I, third spine $2\frac{7}{8}$ to $3\frac{3}{5}$, first ray $2\frac{1}{5}$ to $2\frac{2}{3}$; caudal $1\frac{1}{8}$, with age upper lobe 3 in rest of body, forked; least depth of caudal peduncle 3 to $3\frac{1}{8}$ in head; pectoral $1\frac{1}{5}$ in young to 3 in combined head and body to caudal base with age; ventral $1\frac{1}{3}$ to $1\frac{3}{5}$ in head.

Back and head above light olivaceous brown, sides and below white.

Iris pale yellow, gray or brown.

Fins all uniformly brownish.

Arabia, East Indies, Philippines.

224

Plectromus mizolepis Barnard, Ann. South
African Mus., vol. 21, p. 368, 1925 (off
Table Bay, 500 fathoms).

— Gilchrist, Rep. Fisher. Mar. Biol. Surv.
South Africa, ^{no. 2} ~~part 2~~ Spec. Rep. 3, ^{pt. 1,} p. 65,
1922 (off South Africa, 500 fathoms).

8669. Biri Channel. June 2, 1909.

Length 260 mm.

8570 and 8571. D. 5442. San Fernando^{Point},
Light, N. 39° E., 8.4 miles ($16^{\circ}30'36''$ N.,
 $120^{\circ}11'06''$ E), Luzon. May 11, 1909.

Length 210 to 253 mm.

51994 U.S.N.M. Regrod. Dr. Bathford
Dean. Length 95 mm.

1 example. A.N.S.P. Orion. Rev. Joseph
Clemens. Length 138 mm.

Depth $3\frac{4}{5}$ to 4; head $2\frac{2}{5}$ to $2\frac{2}{3}$, width $2\frac{1}{4}$ to $2\frac{1}{2}$. Snout $3\frac{2}{5}$ to 4 in head from snout tip; eye 6 to 7, $1\frac{1}{3}$ to $1\frac{7}{8}$ in snout, $1\frac{3}{4}$ to 2 in interorbital; maxillary reaches $\frac{2}{5}$ in eye, length $2\frac{1}{2}$ in head from snout tip; interorbital 4 to $4\frac{3}{4}$, broadly convex. Gill rakers 7 + 15, lanceolate, equal eye; gill filaments $\frac{1}{3}$ of gill rakers.

Scales (pockets) 14 or 15 in axial lateral series to caudal base and 2 more on latter; 5 transversely, 5 predorsal forward not quite to hind eye edge. Scales very caducous, all fallen!

D, II or III, 10 or 11, fin origin premedian, fin height $2\frac{1}{8}$ to $2\frac{2}{5}$ in total head length; A, I, 8, fin origin opposite last fourth of dorsal fin base, fin height $2\frac{3}{5}$

Hepatus undulatus (Valenciennes),
Acanthurus undulatus Valenciennes, Hist.
 Nat. Poiss., vol. 10, 1835, p. 150. Indian
Ocean. — Günther, Cat. Fish. Brit. Mus.,
 vol. 3, 1861, p. 335 (copied).

Depth little over $\frac{1}{2}$ in length. Snout profile
 nearly straight. d. IX, 26; a. III, 24.
 Caudal concave behind. Pale brown,
 each side with 12 or 13 whitish undulated
 lines, ascending posteriorly. Dorsal and
 anal brown. Caudal yellowish.
 Length 102 mm. (Valenciennes.)

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to 3; caudal (damaged) apparently
forked; least depth of caudal
peduncle 4, 3 in its own length;
pectoral reaches $\frac{3}{5}$ in anal fin
base, length $1\frac{2}{3}$ to $1\frac{7}{8}$ in total
head length; ventral 3, inserted
before pectoral base.

Body dark brown, scale pockets
darker. Head neutral black. Iris
slate black. Inside mouth and
gill opening black. Fins brownish.

Atlantic, Indian and Pacific
Oceans. Readily known by its
large scales.

930

7140. West coast of Palau Island.
November 18, 1908. Length 262 mm.

6980. West coast of Sabtan Island.
November 8, 1908. Length 243 mm.

15131 U. S. N. M. Samoa. A. B. Steinberger?
Length 255 mm.

47861 U. S. N. M. Solomon Islands.
Australian Museum. Length 173 mm.

52315 U. S. N. M. Apia, Samoa. Bureau
of Fisheries. Length 50 to 236 mm.
12 examples.

U. S. N. M., No. 89252. Lat. $2^{\circ}43'S.$,
Long. $00^{\circ}56'W.$

Discovery Collection. Length 51 to 52
mm. Two examples.

Depth $I \frac{7}{8}$ to 2; head $3 \frac{3}{4}$ to 4, width $I \frac{4}{5}$ to 2. Snout $I \frac{1}{4}$ to $I \frac{1}{3}$; eye $3 \frac{2}{3}$ to 5, $2 \frac{4}{5}$ to $3 \frac{2}{5}$ in snout, $I \frac{1}{3}$ to $I \frac{4}{5}$ in interorbital; teeth 12 to 16 in jaws, large; maxillary $3 \frac{1}{4}$ to $3 \frac{2}{3}$ in head; interorbital $2 \frac{3}{5}$ to $2 \frac{2}{3}$, convexly elevated; only humeral arch with few fine striae. Gill rakers $5 + II$, short, flexible points.

Scales broad, large, very compact and narrowly imbricated, circuli very minute; apical denticles $3I$ to $4I$, with 7 to 9 transverse series of basal elements often more or less complete cusps.

D. IX, 26, $\frac{1}{1}$ or 27, $\frac{1}{1}$, last spine $I \frac{5}{6}$ to 2 in head, twenty third ray $I \frac{2}{5}$ to $I \frac{3}{5}$; A. III, 26, $\frac{1}{1}$ or 27, $\frac{1}{1}$, third spine $2 \frac{3}{5}$ to $2 \frac{7}{8}$, twenty third ray $I \frac{3}{5}$ to $I \frac{2}{3}$, caudal deeply lunate or emarginate, points prolonged, fin $2 \frac{2}{5}$ to $2 \frac{3}{4}$ in combined head and body; least depth of caudal peduncle 2 to $2 \frac{1}{8}$ in head; pectoral $3 \frac{2}{5}$ to $3 \frac{1}{2}$ in combined head and body; ventral $3 \frac{1}{8}$ to $3 \frac{4}{5}$; caudal spine $2 \frac{1}{4}$ to $2 \frac{2}{5}$ in head.

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Melamphaes bispinosus Gilbert

Melamphaes bispinosus Gilbert, Proc.
U. S. Nat. Mus., vol. 48, p. 325, pl. 15,
fig. 5, 1915 (type locality,

off Coronado Islands near San Diego,
California, 642 to 666 fathoms).

Melamphaes mizolepis (not Günther)
Norman, Ann. Mag. Nat. Hist., ser. 10,
vol. 4, p. 168, August 1929 (note).

Plectromus bispinosus Jordan, Evermann, Clarks, Rep.
U. S. Comm. Fisher., 1928 (1930) pt. 2, p. 233 (reference).

Depth $3\frac{1}{2}$; head $2\frac{1}{4}$, width $2\frac{1}{5}$.
Snout $3\frac{2}{3}$ in head; eye $7, 1\frac{4}{5}$ in
snout, 3 in interorbital; maxillary
reaches $\frac{1}{2}$ in eye, length 3 in head;
interorbital 3, low, convex. Gill
rakers $5 + 19$, $1\frac{1}{5}$ times eye; gill
filaments $\frac{1}{2}$ of eye.

Scales (pockets) about 24? in
lateral series; 7? transversely, 6?
predorsal forward till opposite
hind eye edge. Scales all fallen.

$\underline{\text{D. II}}, 11$, fin height $3?$ in head;
 $\underline{\text{A. I}}, 8$, fin origin below last fourth
 of dorsal base, fin height $3?$;
 caudal (broken) $1\frac{3}{4}?$; least
 depth of caudal peduncle $3\frac{2}{3}$,
 or $2\frac{4}{5}$ in its own length; pectoral
 rays 13, fin $1\frac{1}{5}?$ in head,
 apparently reaches opposite base
 of last anal ray; ~~ventral~~ $\underline{\text{I}}, 7$,
 fin $2\frac{4}{5}?$ in head.

Head neutral black or dark
 blackish brown. Iris gray black.
 Inside gill opening black. Body
 and fins light brown.

Pectoral rays dusky yellow,
membranes hyaline. Ventral
uniform.

13454, 14321 and 14322. Basa Reef,
Gulf of Boni, Celebes. December 17, 1909.
Length 114 to 155 mm.

12926, 14929, 13416, 22229. Buta Island,
Celebes. November 20, 1909. Length 110 to 153
mm. [2058]. Brownish, darker in life,
spotting of side of head indistinct,
lower part slightly paler. Dorsal
olive, with 5 or 6 bars, beginning as
darker olive and on soft fin become
cadmium or orange, fuse on fin
posteriorly and terminally to form
entire color; extreme fin edges narrowly
black above; black blotch at axil.

Parr's figure of Melamphaes
bispinosus shows the dorsal
and anal origins opposite and
the dorsal fin base extending
beyond the anal fin base
posteriorly, also a greatly
shorter caudal peduncle, besides
very large scales.

U. S. N. M., no. 75809. Type.

off Coronado Islands near San Diego,
 642 to 666 fathoms. 1904.
Albatross Collection 4382. Length
 85 mm, caudal tips broken.

U. S. N. M., no. 87567.

off Lower California. In 534 fathoms.
Albatross ~~Collection~~
 Collection 5695. Length 70 mm. As
melamphaes maxillaris. This very
 poorly preserved example shows
 some features of the present species.
 Depth $3\frac{1}{2}$; head $2\frac{1}{3}$. D. III, 12?,
 origin premedian; A. begins opposite
 last fourth of dorsal base; least
 depth of caudal peduncle $\frac{1}{3}$ its own
 length; pectoral long, reaches at least
 middle of anal; ventral origin
 slightly before dorsal origin; lower
 gill rakers 15.

871

10409, 11032, 17718. Varadero Bay,
Cubidoro. July 23, 1908. Length 153 to
230 mm.

7121, 7134 to 7136, 7341, 16465.
West coast of Palau Island. November
18, 1908. Length 128 to 230 mm.

6927, 6967, 6983, 6984. West coast of
Sabtan Island. November 8-9, 1908.
Length 163 to 200 mm. Body almost
uniformly striped, with amber and
indigo later fading to yellowish; stripes
continued on dorsal base, but replaced
on terminal portions of fins by slightly
broader but similar bars. Numerous
amber and bronze spots about eye.
Lower head and breast plain. Anal
barred like dorsal. Caudal uniform.

232

Melamphaes microps (Günther)

Scopelus microps Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 186, 1878 (type locality: mid Ocean between Cape of Good Hope and Kerguelen's Land, 1375 fathoms).

Melamphaes microps Günther, Rep. Voy. Challenger, vol. 22, p. 26, 1887 (type).

↑ — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). — Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 279, 1906 (reference), p. 395 (reference). — Brander, + Hist., ser. 10, 39° N., 45° E.,

to 3300 meters; (type); Discovery Rep., vol. 2, Fishes, p. 345, 1930 (lat. 27° to 32° S., long. 00° to 15° W., to 800 meters).

— Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 16, December 1933 (note).
~~Goniistius ? microps Goode and Bean, Oceanic Ichth., p. 518, 1895 (reference).~~

— Roule and Angel, Rés. Camp. Sci. Monaco, vol. 86, p. 68, 1933 (lat. 40° 15' N., long. 56° 25' W., 4000 meters, south east of Nova Scotia).

232

Melamphaes microps (Günther)

Scopelus microps Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 186, 1878 (type locality: mid Ocean between Cape of Good Hope and Kerguelen's Land, 1375 fathoms).

Melamphaes microps Günther, Rep. Voy. Challenger, vol. 22, p. 26, 1887 (type).

— Horman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 157, August 1929 (lat. 39° N., long. 70° to 71° W., 2335 to 3300 meters; lat. 6° N. to 46° S., long. 00° to 15° W. and 45° E., to 3300 meters; (type); Discovery Rep., vol. 2, Fishes, p. 345, 1930 (lat. 27° to 32° S., long. 00° to 15° W., to 800 meters). — Parr,

Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 16, December 1933 (note).
~~Foramitra ? microps Goode and Bean,
Oceanic Ichth., p. 518, 1895 (reference).~~

— Roule and Angel, Rés. Camp. Sci.

Monaco, vol. 86, p. 68, 1933 (lat. $40^{\circ}15'$ N., long. $56^{\circ}25'$ W., 4000 meters, south east of Nova Scotia).

Can't get it

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Melamphaes microps microps Parro,
Bull. Bingham Oceanogr. Coll., vol.
3, art. 6, p. 16, December 1933
(Lat. 24° to 32° N., long. 64° to 75° W.,
8000 to 1000 feet).

Poromitra? microps Goode and Bean,
Oceanic Ichth., p. 518, 1895 (reference).

¹²⁹ Synagris gysron (Bleeker)
Dentex gysron Bleeker, Naturk. Tijdschr.
Nederl. Indië, vol. 12, 1856-57, p. 219.
Nias; Atlas Ichth. Ind. Néerland., vol.
 8, 1876-77, p. 94, pl. (49) 327, fig. 5
 (Sumbawa).

Synagris gysron Günther, Cat. Fishes Brit.
Mus., vol. 1, 1859, p. 375 (copied).

Depth $3\frac{7}{8}$; head $3\frac{1}{3}$, upper profile oblique.
 Snout 3 in head from snout tip; eye 3,
 equals snout, greater than interorbital;
 maxillary reaches eye, expansion 2 in
 eye, length $2\frac{3}{4}$ in head from snout
 tip; jaws nearly equal; 4 or 5 small
 upper canines followed by lower outer
 row of conic teeth, inside band of
 villiform teeth; no lower canines, though
 short inner villiform band with outer
 enlarged row; preopercle edge feebly
 denticulate; suborbital depth $1\frac{1}{2}$ in eye.

Melamphaes microps longivelis
Parr, Bull. Bingham Oceanogr.
Coll., vol. 3, art. 6, p. 16, fig. 6,
December 1933 (type locality,
lat. $22^{\circ} 31' N.$, long. $74^{\circ} 26' W.$,
10000 feet; lat. $24^{\circ} 11' N.$, long.
 $75^{\circ} 37' W.$, 8000 feet).

interorbital low; preopercle edge entire; suborbital depth $1\frac{1}{4}$ in eye.

Scales 50 in lateral line; 3 above, 12 below, predorsal extend forward at least $\frac{3}{4}$ in eye; 3 rows on cheeks to preopercle ridge, flange naked.

D. X, 9 or 10, fourth spine $2\frac{1}{2}$ in head, first ray $2\frac{1}{8}$; A. III, 7 or 8, third spine $3\frac{7}{8}$, first ray $2\frac{7}{8}$; caudal 1, deeply forked, lobes pointed; least depth of caudal peduncle $3\frac{1}{5}$; pectoral $1\frac{1}{5}$; ventral $1\frac{3}{5}$.

Above rosy, below silvery rosy. Iris red or yellow. Fins rosy. Dorsal rays with longitudinal submarginal yellow band. Length 160 mm. (Bleeker.)

East Indies, Queensland.

Forest and Stream, vol. 21, p. 84, August 30, 1883 (no locality);
Plectromus suborbitalis Gill, Proc. (135)

U. S. Nat. Mus., vol. 6, p. 258, 1883 (1884)
(type locality, lat. $38^{\circ}52'40''N.$, long. $69^{\circ}24'40''W.$, 1735 fathoms); — Miner,
Rep. U. S. Fish Comm., pt. 11, p. 193, 1883
(1885) (lat. $39^{\circ}44'30''N.$, long. $71^{\circ}4'W.$,
1022 fathoms). — Goode and Bean,

Oceanic Ichth., p. 179, pl. 54, fig. 201, 1895
(type; lat. 39° to $40^{\circ}N.$, long. 67° to $70^{\circ}W.$,
1149 to 1800 fathoms). — Jordan and
Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1,
p. 841, 1896 (copied).

(— Brauer, Deutsch. Tiefsee Exped.
Valdivia, vol. 15, Fische, p. 284, pl. 13,
fig. 5, 1906 (Gulf of Guinea, 2000 to 3000
meters; north of Cocos-Keeling, 2400 meters),
p. 395 (reference).
— Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher,
1928 (1930), pt. 2, p. 233 (reference).
Melamphaes suborbitalis Günther, Rep.
Voy. Challenger, vol. 22, p. 30, 1887 (copied).
— Garman, Mem. Mus. Comp. Zool., vol. 24, p.
383, 1899 (reference).

— Roule and Lingel, Rés. Camp. Sci.
Monaco, vol. 84, p. 68, 1933 (west of
Azores, 4000 meters; Gulf of Gascony,
3500 meters; east of Nova Scotia,
2500 meters).

Depth 3 to $3\frac{1}{8}$; head 3 to $3\frac{1}{8}$, width $2\frac{1}{10}$ to $2\frac{1}{5}$, snout $2\frac{1}{2}$ to $3\frac{1}{8}$ in head; eye $3\frac{1}{4}$ to $3\frac{3}{5}$, 1 to $1\frac{2}{5}$ in snout, greater than interorbital; maxillary reaches $\frac{1}{3}$ in eye in young, to eye with age, expansion 2 to $2\frac{1}{5}$ in eye, length $2\frac{1}{3}$ to $2\frac{1}{2}$ in head; 6 front canines in each jaw, outer of each little larger, besides extra median lower canine, with age lower less conspicuous; interorbital $4\frac{1}{8}$ to $4\frac{1}{4}$, depressed; infraorbital width $1\frac{1}{8}$ to $1\frac{7}{8}$ in eye. Gill rakers 3 + 10, low spinescent tubercles.

Scales 46 or 47 in lateral line to caudal base and 3 more on latter; 4 or 5 above, 10 to 12 below, 12 or 13 predorsal to hind pupil edge, 3 rows on cheeks to preopercle ridge. Scales with 7 or 8 basal radiating striae;

Depth $3\frac{2}{5}$ to $3\frac{1}{2}$; head $2\frac{4}{5}$, width 2 to $2\frac{1}{8}$? Snout $3\frac{1}{2}$? to 4 in head from snout tip; eye 6 to $6\frac{1}{8}$, $1\frac{3}{4}$ to $1\frac{4}{5}$ in snout, $1\frac{4}{5}$ to $2\frac{1}{4}$ in interorbital; maxillary reaches about opposite hind eye edge, length $1\frac{7}{8}$ to $2\frac{1}{8}$ in head from snout tip; interorbital $2\frac{4}{5}$ to $3\frac{2}{5}$, convexly elevated. Gill rakers 5 + 14, lanceolate, $1\frac{1}{2}$ times eye; gill filaments $\frac{2}{5}$ of gill rakers.

Scales 30 in lateral series; 6 transversely, 8 predorsal forward to occiput little behind eye. Scales very caducous, mostly fallen.

D. III or IV, 14, fin height 2? in total head; A. I, 8, fin height $2\frac{4}{5}$?, fin origin below last fifth of dorsal fin base; caudal $1\frac{1}{2}$?

917

Hepatus sohal (Forskål).

Chaetodon sohal Forskål, Manuscript.

Animal., 1775, pp. XIII, 63. Arabia. —

Walbaum, Arted. Pisc., vol. 3, 1792, p.
441 (copied).

Acanthurus sohal Schneider, Syst. Ichth.

Bloch, 1801, p. 215 (copied). — Rüppell,

Atlas Reis. Nord. Afr. Fische, 1826, p. 56,
plate 16, fig. 1 (Red Sea). — Valenciennes,

Hist. Nat. Poiss., vol. 10, 1835, p. ²²⁷~~167~~ (Red
Sea). — Günther, Cat. Fish. Brit. Mus.,

vol. 3, 1861, p. 334 (Red Sea). — Klunzinger,

Verh. zool.-bot. Ges. Wien, band 21, 1871, p.

507 (Red Sea). — Von Marten, Verh. zool.-bot. Ges. Wien, band 16, 1866, p. 378 (Mina Elai, Red Sea).

Acanthurus (Rhomboides) sohal Klunzinger,

Fische. Roth. Meer., 1884, p. 83.

Chaetodon sohar Gmelin, Syst. Ichth. Linn.,

1789, p. 1268 (copied).

Aspisurus sohar Lacépède, Hist. Nat. Poiss.,

tom 4, 1802, pp. 556, 557 (copied).

(damaged); least depth of caudal peduncle 3 to $4\frac{1}{8}$, or $2\frac{1}{4}$ to $2\frac{2}{3}$ in its own length; pectoral rays 14, fin 1 in total head; ventral $1\frac{4}{5}$?, rays I, 6.

Largely uniform brown. Iris gray. Head blackish. Inside gill opening black.

North and South Atlantic and Antarctic Oceans.

13614 and 13616. Dowarra Island, ⁹¹⁶
Dutch East Indies. December 2, 1907.

Length 190 to 193 mm.

14320. Basa reef, Gulf of Boni,
Celebes. December 17, 1909. Length 190 mm.

12927, 13417, 14635. Burka Island,
November 20, 1909.
Totomi Gulf, Celebes. Length 168 to 178 mm.

21117. Cape Kait, Libani Bay, Celebes.
December 29, 1909. Length 112 mm.

9710, 21451 and 21452. Una Una Road,
Binang Buang Island, Celebes. November
17, 1909. Length 146 to 175 mm.

13631 to 13633. Una Una Road.

November 18, 1909. Length 165 to 180 mm.

15034. Tidore Island, south of
Ternate. November 24, 1909. Length 186 mm.

U. S. N. M., No. 33271. Lat. $38^{\circ}52'40''$
N., long. $69^{\circ}24'40''$ W. In 1735 fathoms.

Albatross Collection

2036. Length 100? mm, caudal
damaged. Type of Plectromus
suborbitalis.

U. S. N. M., No. 35451. Lat. $39^{\circ}40'N$,
long. $70^{\circ}20'15''$ W. In 1800 fathoms.

Albatross Collection

2190. Length 74? mm.

U. S. N. M., No. 39253. Lat. $39^{\circ}27'N$,
long. $71^{\circ}15''$ W.

Albatross Collection

2747. Length 70 mm.

U. S. N. M., No. 46130. Lat. $40^{\circ}3'30''$
N., long. $67^{\circ}27'15''$ W. In 1149 fathoms.

Albatross Collection

2535. Length 34 to 39 mm. Three
examples.

Brown generally, with little tinge of gray or drab, little paler and uniform below level of pectoral base. Above 9 or 10 pairs of deep brown longitudinal parallel lines, within each pair very narrow blue line and other paler interspaces wider than either of dusky or dark lines. On front of head first 2 bands curve down and backward so all those on cheek parallel. At caudal base bands abruptly end and 2 on caudal base transversely, greater median part of fin dusky brown but separated from broad brown margin by narrow lunar blue line. Dorsals deeper brown than body and marked with many parallel longitudinal bluish lines, posteriorly these continuations of blue longitudinal lines within dark bands. Anal brown, with obscure brownish longitudinal bands. Both edges of dorsals and anals narrowly blue. Pectoral brownish, with 1 or 2 short irregular bluish lines mostly longitudinal and basal. Ventral whitish, front border broadly dusky in contrast and with very narrow anterior blue margin.

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Melamphaes lugubris Gilbert

Melamphaes lugubris Gilbert, Proc. U. S. Nat. Mus., vol. 13, p. 59, 1890 (1891)
(type locality, off California below Point Concepcion, Station 2923, 822 fathoms). — Garman, Mem. Mus. Comp.

Zool., vol. 26, p. 63, December 1899 (lat. $7^{\circ}6'N.$, long. $79^{\circ}48'W.$, 1168 fathoms; lat. $10^{\circ}14'N.$, long. $96^{\circ}28'$, 2232 fathoms^{p. 383 (reference)}).

↑ — Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 395, 1906 (reference).

Coll., vol. 3, art. 6, p. 17, December 1933 (lat. $32^{\circ}24'N.$, long. $64^{\circ}29'W.$)
Plectromus lugubris Goode and Bean, Oceanic Ichth., p. 518, 1895 (reference). — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 842, 1896 (compiled). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., 1928/1930, pt. 2, p. 233 (reference).

Plectromus (Melamphaes) lugubris Townsend and Nichols, Bull. Amer. Mus. Nat. Hist., vol. 52, art. 1, p. 13, May 16, 1925 (off Cape Van Lucas N. 23° in 630 fathoms).

Melamphaes lugubris Gilbert

Melamphaes lugubris Gilbert, Proc. U. S. Nat. Mus., vol. 13, p. 59, 1890 (1891) (type locality, off California below Point Concepcion, Station 2923, 822 fathoms). — Garman, Mem. Mus. Comp. Zool., vol. 26, p. 63, December 1899 (lat. $7^{\circ}6'N.$, long. $79^{\circ}48'W.$, 1168 fathoms; lat. $10^{\circ}14'N.$, long. $96^{\circ}28'$, 2232 fathoms^{1.383 (reference)}). — Horman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 158, August 1929 (off California, $23^{\circ}N.$, 1180 meters). — Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 17, December 1933 (lat. $32^{\circ}24'N.$, long. $64^{\circ}29'W.$).

Plectromus lugubris Goode and Bean, Oceanic Ichth., p. 518, 1895 (reference). — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 842, 1896 (compiled). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., 1928/1930, pt. 2, p. 233 (reference).

Plectromus (Melamphaes) lugubris Townsend and Nichols, Bull. Amer. Mus. Nat. Hist., vol. 52, art. 1, p. 13, May 16, 1925 (off Cape Van Lucas N. 23° in 630 fathoms).

~~The A. J. Redd
your friend~~

Col



2

4

Ph

10

Depth $3\frac{2}{5}$ to $3\frac{1}{2}$; head $2\frac{3}{4}$ to $2\frac{4}{5}$, width $1\frac{3}{5}$ to $2\frac{1}{10}$. Snout $3\frac{2}{5}$ to 4 in head; eye $6\frac{1}{2}$ to $6\frac{3}{4}$, $1\frac{4}{5}$ in snout, $3\frac{1}{4}$ in interorbital; maxillary reaches opposite hind eye edge, length 2 in head; interorbital $2\frac{1}{2}$ to $2\frac{3}{4}$, broadly convex. Gill rakers 6 + 14, lanceolate, equals gill filaments or $1\frac{1}{3}$ times eye.

Scales (pockets) 26? in lateral series. Squamation and pockets not clearly made out.

D. III, 15 (damaged); A. I, 8, fin origin below last fourth of dorsal fin base; caudal (broken)?; least depth of caudal peduncle $3\frac{3}{4}$ to $4\frac{2}{5}$, $2\frac{1}{3}$ to $3\frac{1}{2}$ in its own length; pectoral rays 14, fin $1\frac{2}{7}$? to $1\frac{2}{5}$ in head; ventral 2?, rays I, 7 or 8.

19469. ~~1907~~. Batan Island. July 22, 1909. Length 45 mm. ⁷⁹⁶

8507. Entrance Puerta Princesa

Bay. April 5, 1909. Length 165 mm.

1692. Subat Bay, Luzon Island.

June 23, 1909. Length 40 mm.

469. ~~Hinunangan~~ Bay, Cebu

Island. July 30, 1909. Length 138 mm.

4716. Lampiran Island. September

11, 1909. Length 59 mm.

1 example. Nasugbu. January 16, 1908.

Length 17 mm.

1 example. Sablayan, Mindoro. December

13, 1908. Length 25 mm.

1 example. Singaan Island. September

21, 1909. Length 21 mm.

19469.

Length 45 mm.

Uniform brownish black, fins dusky. Head blackish. Iris dark gray. Inside gill opening blackish.

Eastern Pacific. Although Norman gives as distinctions for this species, in contrast with those of Melamphaes microps — Head $2\frac{1}{2}$; ventral origin little in front of pectoral base — these characters are not altogether in agreement. The head is $2\frac{3}{4}$ to $2\frac{4}{5}$ and in the type the ventral origin is decidedly behind the pectoral origin.

795
tail, though oblique in the vertical fin
his Ogilby says it is a small species though
our largest example is considerably
more than his, at 120 mm compared
with 165 mm.

U. S. N. M., no. 44287. Type.

243

Albatross Collection 2923. Length 78?
mm, caudal tips broken.

U. S. N. M., no. 87569.

Albatross Collection. Length 86 mm.

244

Melamphaes macrocephalus Parr

Melamphaes macrocephalus Parr,
Bull. Bingham Oceanogr. Coll., vol. 2,
art. 4, p. 41, fig. 16, October 1931 (type
locality, lat. $16^{\circ}14'N.$, long. $99^{\circ}36'30''W.$,
1800 fathoms, off Mexico; lat. $14^{\circ}30'30''N.$,
long. $96^{\circ}14'W.$, 2100 fathoms).

Depth $3\frac{1}{3}$; head $2\frac{1}{4}$, width $2\frac{1}{3}$.
Snout $4\frac{1}{5}$ in head from snout tip;
eye $6\frac{2}{5}$, $1\frac{2}{5}$ in snout, 3 in interorbital;
maxillary reaches slightly behind hind
eye edge or about $\frac{1}{4}$ of eye diameter,
length $2\frac{1}{5}$ in head from snout tip.
Gill rakers $6+12$, lanceolate, twice
gill filaments or equal $1\frac{2}{5}$ times eye
diameter.

Scales (pockets) 22 in median
lateral series to caudal base and 2
more on latter; 7 above anal origin,
7 predorsal forward to occiput, not
quite forward to eye. Scales very
caducous, all fallen.

D. III, 16, I, fin origin well premedian, fin height $2\frac{1}{2}$? in total head length; A. I, 8, I, fin origin opposite last sixth in dorsal fin base, fin height $3\frac{1}{2}$; caudal (damaged) apparently emarginate; least depth of caudal peduncle $5\frac{1}{5}$, 3 in its own length; pectoral $1\frac{1}{4}$, reaches $1\frac{3}{5}$ to caudal base, fin rays 14; ventral $1\frac{3}{4}$ in total head, reaches vent, inserted well forward of pectoral.

Body brown, scale pockets dusky. Head neutral black. Iris dark slate. Inside mouth and gill opening blackish. Breast and belly neutral dusky. Fins pale brown.

Eastern Pacific. The specimen below differs greatly from Parr's figure in that its ventral fins are

239. Ulugan Bay, Palawan. December 29, 1908. Length 95 mm.

513. Ulugan Bay, Rita Island. December 29, 1908. Length 88 mm.

426 and 427, 4729 and 4730. Gane Road, Gillolo Island. December 1, 1909. Length 34 to 65 mm.

greatly longer or reach the vent.
~~Off Western~~

U. S. N. M., No. 92125. Lat. $16^{\circ}14'N.$,
long. $99^{\circ}36'30''W.$, off western Mexico.
In 625 fathoms. 1926.

Bingham Oceanographic Collection.
Museum of Comparative Zoology.
Length 55 mm. Paratype.

920

545. San Juanico Strait. April 13,
1908. Length 70 mm.

4717 to 4719. San Miguel Harbor, Ticao
Island. April 21, 1908. Length 83 to 107 mm.

733 and 734. Santa Cruz, Marinduque.
April 24, 1908. Length 90 to 121 mm.

4853 and 4854, 9393 to 9395. Surigao,
Mindanao. May 7, 1908. Length 67 to 113 mm.

4900. Taligiti Island. March 15, 1909.
Length 72 mm.

381. Tara Island. December 14, 1908.
Length 150 mm.

592. Tara Island. December 15, 1908.
Length 145 mm.

10400. Tilio, Lubang Island. July 14, 1908.
Length 129 mm.

424. Togeau Bay, Tогian Island. November
19, 1909. Length 75 mm.

898 and 1057. Ubugan Bay, channel north
of Oyster Inlet. December 28, 1908. Length 110 to 122 mm.

247

Melamphaes typhlops (Lowe)

Metopias typhlops Lowe, Proc. Zool. Soc. London, vol. 11, p. 90, 1843 (type locality, Madeira); vol. 18, p. 251, 1850 (Madeira).

Melamphaes typhlops Günther, Cat. Fish. Brit. Mus., vol. 5, p. 433, 1864 (Magdalena, Madeira); Rep. Voy. Challenger, vol. 22, p. 27, pl. 5, fig. A, 1887 (Madeira). — Goode and Bean,

Oceanic Ichth., p. 117, pl. 53, fig. 198, 1895 (copied). — Snyder, Res. Camp. Sci.

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). — Branner, Deutsch. Tiefsee Exped. Valdivia vol. 15, Tiefsee Fische, p. 279, 1906 (diagnosis in text), p. 385 (reference).

— Roule, Bull. Inst. Océanogr. Monaco, no. 292, p. 14, May 31, 1914 (south east of Portugal at surface); Res. Camp. Sci. Monaco, vol. 52, p. 43, pl. 2, fig. 25, 1919 (same example). — Norman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 156, August 1929 (Madeira; lat. $6^{\circ}55'N$, long. $15^{\circ}54'W$, to 800 meters); Discovery Rep., vol. 2, Fishes, p. 344, 1930 (above example).

247

Melamphaes typhlops (Lowe)

Metopias typhlops Lowe, Proc. Zool. Soc. London, vol. 11, p. 90, 1843 (type locality, Madeira); vol. 18, p. 251, 1850 (Madeira).

Melamphaes typhlops Günther, Cat. Fish. Brit. Mus., vol. 5, p. 433, 1864 (Magdalena, Madeira); Rep. Voy. Challenger, vol. 22, p. 27, pl. 5, fig. A, 1887 (Madeira). — Goode and Bean,

Oceanic Ichth., p. 117, pl. 53, fig. 198, 1895 (copied). — Jugmayer, Rés. Camp. Sci. Monaco, vol. 35, p. 98, 1911 (lat. $36^{\circ}16'N$, long. $26^{\circ}41'W$, 3250 meters, off Azores).

— Roule, Bull. Inst. Océanogr. Monaco, no. 292, p. 14, May 31, 1914 (south east of Portugal at surface); Rés. Camp. Sci. Monaco, vol. 52, p. 43, pl. 2, fig. 25, 1919 (same example). — Korman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 156, August 1929 (Madeira; lat. $6^{\circ}55'N$, long. $15^{\circ}54'W$, to 800 meters); Discovery Rep., vol. 2, Fishes, p. 344, 1930 (above example).

Depth 4; head $3\frac{1}{5}$. Snout $5\frac{1}{2}$ in head; eye 6; maxillary reaches beyond eye; teeth small, villiform, in narrow bands in both jaws; interorbital 3 in head. Lower gill rakers 8 or 9.

Scales 25 in longitudinal series. Head moderately cavernous, ridges and crests feebly developed; preopercle and opercle edges entire; weak ridges on opercle above.

D. II or III, 14 or 15, distance from origin to snout end $\frac{3}{5}$ that from origin to caudal base; A. I, 7, origin well behind level of last dorsal ray, $2\frac{1}{2}$ times as distant from snout end as from caudal base; caudal peduncle twice long as deep.

lower row followed by band of villiform teeth; 3 or 4 lower front canines with row of smaller canine teeth each side of jaw, in front villiform band inside; preopercle edge crenulate; preorbital depth $1\frac{2}{5}$ in eye.

Scales 50 in lateral line; 3 above, 10 below, predorsal extend forward opposite eye center; 3 rows on cheek to preopercle ridge, flange naked.

D. X, 9, I, third spine 3 in total head length, tenth spine $2\frac{2}{5}$, first ray $2\frac{1}{4}$; A. III, 7, I, third spine $2\frac{7}{8}$, first ray $2\frac{1}{3}$; caudal $1\frac{1}{4}$, deeply lunate, lobes pointed; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{2}{5}$; ventral $1\frac{1}{4}$.

Rosy on back, paler below. Iris yellowish. Yellow median lateral

length $4\frac{1}{2}$ in fish; pectoral
rays 15, fin little shorter than
head, not nearly reaching anal;
ventral rays I, 7, origin
behind pectoral base. Length
90 mm. (Norman.)

Eastern North Atlantic.

can 179

Synagris celebicus (Bleeker)

Centex celebicus Bleeker, Naturk.

Tijdschr. Nederland. Indië, vol. 7, 1854,
p. 245. Macassar; Atlas Ichth. Ind.

Néerland., vol. 8, 1876-77, p. 88, pl. (54)
332, fig. 2 (Celebes).

Synagris celebicus Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 377 (Lousiades).

Sauvage, Bull. Soc. Philomath. Paris,
series 7, vol. 5, 1881, p. 105 (Swatow, China).

Klunzinger, Fische Roth. Meer., 1884,
p. 36. Rutter, Proc. Acad. Nat. Sci.

Philadelphia, 1897, p. 76 (compiled).

Depth $4\frac{1}{8}$; head $3\frac{1}{8}$, upper profile
oblique. Snout 3 in head from snout
tip; eye $3\frac{3}{5}$, $1\frac{1}{5}$ in snout, greater than
interorbital; maxillary reaches opposite
front eye edge, expansion $2\frac{2}{3}$ in eye,
length $2\frac{3}{5}$ in head from snout tip;
4 upper low front canines and outer

250

Melamphaes robustus Günther -

Melamphaes robustus Günther, Rep. Voy. Challenger, vol. 22, p. 29, 1887 (type locality, mid Atlantic south west of Sierra Leone lat. $1^{\circ}47'N.$, long. $24^{\circ}26'W.$, 1850 fathoms; midway between Cape of Good Hope and Kerguelen Island, 1375 fathoms; north of New Guinea, 1100 fathoms). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). —

Horman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 160, August 1929 (lat. 1° to $39^{\circ}N.$, long. 9° to $71^{\circ}W.$, 800 to 3384 meters, including type; lat. 3° to $35^{\circ}S.$, long. 16° to $127^{\circ}E.$, 1310 to 2580 meters, including type of Melamphaes malayanus); Discovery Rep., vol. 2, ^{fishes} p. 345, 1930 (lat. 2° to $34^{\circ}S.$, long. 15° to $16^{\circ}E.$ and $9^{\circ}W.$, 800 to 2580 meters).

— Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, (reference) Tiefsee Fische, p. 279, 1906 (diagnosis in key), p. 395.

Plectromus robustus Goode and Bean, Oceanic Ichth., p. 180, 1895 (copied).

— Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 19, December 1933 (lat. 21° to $32^{\circ}N.$, long. 64° to $77^{\circ}W.$, 4000 to 1000 feet).

257

Scopeloberyx opercularis Zugmayer,
Bull. Inst. Océan. Monaco, no. 193,
p. 8, January 20, 1911 (type locality,
lat. $36^{\circ} 7' N$, long. $10^{\circ} 18' W$, 4740 meters,
off Portugal); Rés. Camp. Sci. Monaco,
vol. 35, p. 103, pl. 5, fig. 6, 1911 (type).

Melamphaes opercularis Roule, Rés.
Camp. Sci. Monaco, vol. 52, p. 44, 1919
(north east of Azores, 2600 meters).

? Melamphaes nigrescens (not Brauer)
Zugmayer, Rés. Camp. Sci. Monaco, vol.
35, p. 99, 1911 (lat. $36^{\circ} 54' 30'' N$, long. $11^{\circ} 49' W$, to 5100 meters).

? Melamphaes malayanus Weber, Siboga
Exped., vol. 57, Fische, p. 187, 1913 (type
locality, lat. $3^{\circ} 20' S$, long. $127^{\circ} 22.9' E$,
Manipa Strait, 1536 meters; lat. $3^{\circ} 32.5' S$,
long. $124^{\circ} 15.5' E$, Banda Sea, 1500 meters).
Weber and Beaufort, Fishes Indo Austral
Archip., vol. 5, p. 264, 1929 (copied).

Depth $3\frac{2}{3}$; head $2\frac{2}{3}$, width 2.
Snout $3\frac{1}{2}$ in head from snout tip;
eye 8, 2 in snout, 2 in interorbital;
maxillary extends eye diameter
behind eye, expansion equals eye,
length $1\frac{7}{8}$ in head from snout tip;
interorbital $4\frac{1}{2}$, rather low, convex.
Gill rakers $5 + 15$, twice eye diameter;
gill filaments $\frac{1}{3}$ gill rakers.

Scales (pockets) 26? in lateral
axial series; 10 transversely above
anal origin. Scales very caducous,
most all fallen.

D. II, 11, fin origin median,
rays all broken; A. I, 8, fin
origin at last fifth of dorsal
base, rays all broken; caudal
(damaged) evidently emarginate;
least depth of caudal peduncle

819
917. Habatas Point, Samar Island.
July 24, 1909. Length 120 mm.

445. Pandanan Island. March 23,
1909. Length 85 mm.

1316. Polloc. May 23, 1908. Length
125 mm.

604
355 to 357⁶⁰⁴ Port Calton. December 15,
1908. Length 73 to 130 mm.

1019. Port Matalvi. November 22, 1908.
Length 96 mm.

1187 and 1188. Port Matalvi. November 23,
1908. Length 76 to 92 mm.

633. Port Tilig. July 15, 1908. Length
120 mm.

663, 739, 747. Port Alon, west of Pinan
Island. December 17, 1908. Length 70 to 115 mm.

874. Ragay Bay. March 10, 1909. Length
67 mm.

729 [492]. Romblon. March 26, 1908.
Length 108 mm.

$4\frac{1}{8}$, $2\frac{4}{5}$ in its own length; pectoral reaches anal origin or $2\frac{2}{5}$ to caudal base, fin $1\frac{3}{4}$ in total head; ventral inserted well behind pectoral (damaged) evidently reach over half way to anal.

Body brown. Head neutral black. Belly, chest and breast blackish brown. Iris gray. Inside mouth and gill opening blackish. Fins brownish.

North and South Atlantic, East Indies?

U. S. N. M., no. 39253. Lat. $39^{\circ} 27' N.$, long. $71^{\circ} 15' W.$

Albatross Collection.
Length 53? mm, caudal tips broken.

815

Dorsals and anals dusky brown to blackish, like tail, with very narrow whitish edges. Caudal and paired fins pale like head.

East Indies. Our large series of this species shows it to be remarkably uniform and with but slight change with age.

Melamphaes nigrescens Brauer

Melamphaes nigrescens Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Fische, p. ^(n. 19) 283, pl. 13, fig. 4, 1906 (type locality, lat. $0^{\circ}26'3''N$, long. $6^{\circ}32'W$, in 4000 meters, Gulf of Guinea; off south-west Africa, 2000 to 3000 meters; ✓

north of New Amsterdam, 2000 to 2200 meters; north of Cocos-Keeling, 2400 meters; Bengal Bay, 2000 meters; Chagos, 1900 to 2000 meters; between Seychelles and Zanzibar, 2000 meters), p. 395 (reference).

(Tropical and Antarctic Oceans, 1000 to 1500 fathoms).

Melamphaes crassiceps Günther, Rep. Voy. Challenger, vol. 22, p. 28, 1887 (specimen 68 mm from north of New Guinea, station 220, 1600 fathoms). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383 (part). ✓

— Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Fische, p. 395, 1906 (reference).

4393, off Santa Catalina Island, 2113 to 2259 fathoms).

Melamphaes nigrescens Brauer

Melamphaes nigrescens Brauer, Deutsch.
Tiefsee Exped. Valdivia, vol. 15, Fische,
p. ^(n. 19) 283, pl. 13, fig. 4, 1906 (type locality, lat.
 $0^{\circ}26'3''N$, long. $6^{\circ}32'W$, in 4000 meters, Gulf of
Guinea; off south-west Africa, 2000 to 3000 meters; ✓

with — Norman, Ann. Mag. Nat. Hist., ser. 10,
vol. 4, p. 161, August 1929 (Günther's
material from lat. $0^{\circ}42'S$, long. $147^{\circ}0'E$, 2012
meters).

5+8 Scopelus crassiceps (part) Günther, Ann.
Mag. Nat. Hist., ser. 5, vol. 2, p. 183, 1878
eye. (Atlantic and Antarctic Oceans, 675 to
1500 fathoms).

Melamphaes crassiceps Günther, Rep. Voy.
Challenger, vol. 22, p. 28, 1887 (specimen
68 mm from north of New Guinea, station
220, 1600 fathoms). — Garman, Mem. Mus.
Comp. Zool., vol. 24, p. 383 (part). ✓

Melamphaes mycterinus Gilbert, Proc. U.
S. Nat. Mus., vol. 48, p. 326, pl. 16, fig. 6,
1915 (type locality, Albatross station
4393, off Santa Catalina Island,
2113 to 2259 fathoms).

14
dental plates in lower jaw, but with
outer median teeth. Lips broad, fleshy
Hard preopercle edge with notch below
just above which some very small
irregular denticles. Gill-Rakers 5+8
short, strong, upper ones bifid, half
of which 1 1/2 in eye.

with dusky gray. Ventrals and
anal pale to whitish. Caudal
and posterior gray.

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1915
439

Depth $3\frac{2}{5}$, head $2\frac{3}{4}$, width 2.
Snout $3\frac{1}{2}$ in head from snout tip;
eye 9, $2\frac{1}{2}$ in snout, $2\frac{3}{5}$ in
interorbital; maxillary reaches
slightly behind eye, length 2 in
head from snout tip; interorbital
 $3\frac{1}{8}$, convexly elevated. Gill rakers
5 + 14, lanceolate, $1\frac{2}{3}$ times eye
diameter; gill filaments $\frac{2}{5}$ gill
rakers.

Scales (pockets) 27 in axial
lateral series; 10 above anal origin,
11 predorsal forward to occiput.
Scales all very caducous and
all fallen.

8985. ⁹²⁹ Rapa Rapa Island. June
22, 1909. Length 255 mm.

5698. Sabtan Island. November 8,
1908. Length 217 mm.

6902, 6903, 19161. Santo Domingo de
Boaco, Batan. November 7, 1908.
Length 190 to 240 mm.

14017. Santo Domingo de Boaco,
Batan. November 17, 1908. Length
168 mm.

15192. Tagnak Island. January 7,
1909. Length 223 mm.

7348. Tara Island. December 14, 1908.
Length 257 mm.

6479, 6480, 10384 to 10386. Tilig,
Subang Island. July 15, 1908. Length
178 to 250 mm.

D. II, 12, fin origin slightly premedian, fin height $2\frac{4}{5}$? in total head length; A. I, 8, origin below hind end of dorsal fin base, fin height 3 in total head; caudal (broken) $1\frac{2}{5}$?; least depth of caudal peduncle $3\frac{2}{3}$, $2\frac{1}{4}$ in its length; pectoral $1\frac{1}{4}$, reaches half way to caudal base; ventral (broken) $2\frac{1}{5}$ in total head.

Body brown, scale pockets little darker. Iris slate gray. Head black. Inside mouth and gill opening black. Fins pale to whitish.

South Atlantic?, Indian Ocean, Bay of Bengal, South ^{and East} Pacific. I have followed Norman in placing Melamphaes nycterinus Gilbert with

21416 and 21417. Dinaklasay Island,
Masam Bay. June 12, 1909. Length 174
to 190 mm.

7001 and 7002, 17305 to 17308. Sipadan
Island. September 28, 1909. Length 150 to
205 mm.

7003 and 7004. Stream at Maagnas
Lagonoy, Gulf of Luzon. June 17, 1909.
Length 190 to 198 mm.

14416. Talise Island. November 9, 1909.
Length 103 mm.

7907. Tubalutan Island. September 9,
1909. Length 203 mm.

this species, with which it agrees
in most all essentials.

U. S. N. M., No. 75810.

off Santa Catalina Island, California.

In 2113 to 2259 fathoms.

Albatross Collection 4393. Length 80 mm,
caudal tips broken. Type of Melanophaes
nycterinus.

818

22843. Isabela, Basilan. September
11, 1909. Length 46 mm.

551 and 4735. ~~Kayaa~~^{oaa} Island. November
29, 1909. Length 48 to 69 mm.

141, 755, 956, 957, 4768. Langa Point, Luzon.
June 24, 1909. Length 75 to 135 mm.

4839. Little Santa Cruz Island. May 26,
1908. Length 116 mm.

1101 and 1102. Little Santa Cruz Island.
May 28, 1908. Length 138 to 145 mm.

648 and 649. Lode Bay, Dactacada Island.
March 13, 1909. Length 105 to 125 mm.

1259. Makeai Island. April 5, 1909.
Length 77 mm.

1084 to 1086. Masbate reef, Masbate
Island. April 20, 1908. Length 87 to 108
mm.

911 and 9671. Masamat Bay, Dinialasag
Island. June 12, 1909. Length 72 to 100 mm.

Melamphaes opisthopterus Parr

Melamphaes opisthopterus Parr,
Bull. Bingham Oceanogr. Collection,
vol. 3, art. 6, p. 18, fig. 7, December
1933 (type locality, lat. $23^{\circ}57'45''$
N., long. $77^{\circ}25'25''$, 7000 feet;
lat. 21° to 32° N., long. 64° to 77°
W., 7000 to 10000 feet).

Cuv¹⁷⁹ Synagris upeneoides (Bleeker)

Dentex upeneoides Bleeker, Natuurk. Tijdschr. Nederland. Indië, vol. 3, 1852, p. 725.

Klabat Bay, Banka; Atlas Ichth.

Ind. Néerland., vol. 8, 1876-77, p. 92, pl. 49, fig. 2 (Banka and Celebes).

Synagris upeneoides Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 375 (copied). ¹/_m

Klunzinger, Sitz. Ber. Akad. Wiss. Wien, Math.-naturwiss. Klasse, vol. 80, pt. 1,

1879, p. 351 (Queensland). ¹/_m Meyer, An. Soc. Españ. Hist. Nat. Madrid, vol.

14, 1885, p. 15 (North Celebes).

Hemipterus upeneoides Seale, Philippine Journ. Sci., vol. 5, no. 4, Oct. 1910, p. 275. (Handokan).

Depth $3\frac{1}{2}$; head 3, profile inclined.

Snout $2\frac{7}{8}$ in head; eye 3, $3\frac{1}{2}$ in snout, greater than interorbital; jaws equal; maxillary reaches $\frac{7}{8}$ to eye, length 3 in head; 6 upper front canines, none below; bands of villiform teeth in jaws, at least in front, outer row little enlarged;

Depth $4\frac{1}{4}$; head $3\frac{1}{4}$. Snout
4 in head from snout tip; eye
13, $2\frac{2}{5}$ in snout; maxillary
reaches $1\frac{1}{4}$ eye diameters. Behind
eye, length $1\frac{7}{8}$ in head from
snout tip; interorbital rather
high; Gill-rakers 3 + 11.

Teeth villiform, in narrow bands
in each jaw;

Opercular and preopercular edges
smooth.

Scales 27 or 28 in longitudinal
series. Head cavernous, with
smooth ridges. Snout without
spine.

D. III, 12, origin much nearer
snout tip than caudal base,
second branched ray $1\frac{9}{10}$ in total
head length; A. I, 8, origin

Scales 56 in lateral line; 3 above, 10 below, predorsal scales extend forward half way? in eye; 4 rows on cheek to preopercle ridge, none on ^{preopercle} flange.

D. X, 10, fourth spine $2\frac{2}{3}$ in head, first ray $3\frac{3}{4}$; A. III, 7, third spine $3\frac{3}{4}$, first ray $\frac{1}{2}$; caudal 1, forked, lobes pointed; least depth of caudal peduncle 1; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{3}$; fins without filaments.

Violet brown above, tinged with rose, silvery below. Fins flesh red, ends yellow. Iris yellow. Length 128 mm. (Lesson.)

Arabia, Zanzibar, East Indies. A little known species, figured with a denticulate preorbital.

below base of ~~teeth~~ dorsal ray,
 fin height 2; caudal $1\frac{2}{5}$?,
 shown emarginate; least depth
 of caudal peduncle $3\frac{1}{5}$, 3
 in its own length, which $2\frac{1}{5}$
 forward to mandible tip;
 pectoral rays 12, fin $1\frac{1}{6}$ in
 total head or reaches ^{opposite} base of
 fourth branched dorsal ray;
 ventral inserted at last third
 in space between pectoral and
 dorsal origins, length 2 in
 total head, rays I, 8.

Length 36 mm. [≡] without caudal.
 (Parr.)

Western Atlantic.

Can 129

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Synagris ruber (Valenciennes)

Dentex ruber Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 245. Probably sea of the Indies; Waigiu. ¹/_m Lesson, Voy. Coquille, Zool., vol. 1, pt. 2, November 12, 1831, p. 187, pl. 31, fig. 2 (Waigiu). ¹/_m Bleeker, Atlas Ichth. Ind. Néerland., vol. 8, 1876-77, p. 84 (copied). ¹/_m Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 220 (copied Lesson). Synagris ruber Sawage, Hist. Nat. Madagascar, Poiss., 1891, p. 180 (Mascate, Zanzibar, Waigiu).

Depth 3; head 3. Snout $2\frac{7}{8}$ in head; eye $3\frac{3}{4}$, $1\frac{1}{4}$ in snout; maxillary reaches $\frac{1}{8}$ in eye, expansion $1\frac{3}{5}$ in eye, length $2\frac{3}{5}$ in head; jaws subequal; 6 canines in front of each jaw; lower preorbital edge denticulate, ~~its~~ depth $1\frac{4}{5}$ in eye; interorbital low; preopercle entire.

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Melamphaes nordenskjöldii (Lönnerberg)

Melamphaes (Plectromus) nordenskjöldii
Lönnerberg, Wiss. Ergebn. Schwed.

→ Sudpolar-Exped., vol. 5, Zool. 4, pt. 6,
p. 58, 1905 (type locality, Lat. $49^{\circ}56'S$,
long. $49^{\circ}56'W$, 2700 meters).

↑ Melamphaes nordenskjöldi Branner, Deutsch.
Tiefsee Exped. Valdivia, vol. 15, Tiefsee
Fische, p. 279, 1906 (diagnosis in key),
p. 395 (reference).

? Lophocephalus anthrax Osorio, Journ. Sci.
Math. Nat. Lisbonne, ser. 2, vol. 7, no. 27,
p. 173, ^{text figs. 1-2, also pl.} 1906 (type locality, off Cape Espichel,
Portugal, in 1000 meters, from Centrophorus granulosus ^{and others} Müller,
Mem. Mus. Bocage, vol. 1, p. 8, 1909.

261

Melamphaes nordenskjöldii (Lönnerberg)

Melamphaes (Plectromus) nordenskjöldii
Lönnerberg, Wiss. Ergebn. Schwed.

→ Sudpolar-Exped., vol. 5, Zool. 4, pt. 6,
p. 58, 1905 (type locality, Lat. $49^{\circ}56'S$,
long. $49^{\circ}56'W$, 2700 meters).

Melamphaes nordenskjöldii Norman,
Ann. Mag. Nat. Hist., ser. 10, vol. 4, p.
159, August 1929 (Lat. $33^{\circ}S$, long. 8° to 9°
E., to 1000 meters); Discovery Rep.,
vol. 2, Fishes, p. 345, 1930 (Lat. 33° to
 $35^{\circ}S$, long. 6° to $9^{\circ}E$, 850 to 1100 meters).

? Lophocephalus anthrax Asorio, Journ. Sci.
Math. Nat. Lisbonne, ser. 2, vol. 7, no. 27,
p. 173, ^{text figs. 1-2, also pl.} 1906 (type locality, off Cape Espichel,
Portugal, in 1000 meters, from Centrophorus granulosus ^{and Heude} Müller,
Mem. Mus. Bocage, vol. 1, p. 8, 1909.

Depth $3\frac{1}{3}$; head $2\frac{5}{6}$ to 3.

Snout $4\frac{4}{5}$ to $5\frac{1}{2}$; eye $4\frac{4}{5}$ to $5\frac{1}{2}$; maxillary reaches $\frac{1}{2}$, or little beyond, in eye; teeth very small, villiform, apparently uniserial in jaws; interorbital little over 3 in head. Lower gill rakers 20.

Scales 27 to 29 in longitudinal series. Head moderately cavernous, ridges and crests rather feeble; preopercle with faint striae ending in feeble points; no spines at angle of preopercle ridge; opercle above with 2 strong diverging ridges, number of weaker ridges between ending in points.

D. III, 9, distance from origin to snout end $\frac{9}{10}$ that

also margin of spinous fin narrowly sulphur yellow. Anal with subbasal longitudinal narrow yellow band and with several others less distinct or extensive, parallel out on fin. Ventral with axillary scale and base of fin bright sulphur yellow. Caudal filament sulphur yellow.

Known previously only from Zanzibar. The broad sulphur yellow basal band on the dorsal fin and the long filament of the upper caudal lobe of same color are characteristic. As the species is little known I give the following modified description from the original of Steindachner:

Depth $2\frac{2}{3}$; head $2\frac{7}{8}$. Snout $2\frac{7}{8}$ in head; eye $3\frac{2}{3}$, $1\frac{1}{8}$ in snout; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{1}{3}$ in head;

from origin to caudal base;
A. I, 8, origin below or close
behind level of last dorsal
ray, $1\frac{2}{3}$ to $1\frac{3}{4}$ times as distant
from snout end as from caudal
base; caudal peduncle twice
long as deep, $3\frac{3}{5}$ to $3\frac{3}{4}$ in length
of fish; pectoral rays 14 or 15,
nearly long as head, reaches
above anal origin; ventral
I, 7, origin slightly behind
pectoral base. Length 80 mm.
(Norman)

South Atlantic.

lower caudal lobe $1\frac{1}{4}$ to $1\frac{1}{3}$, fin deeply emarginate, upper lobe extended in long filament until $1\frac{2}{3}$ in combined head and body to caudal base.

Back light brown, sides and below whitish with sulphur yellow tints and whole body overshot with silvery. Iris yellowish. Back likely with reddish tinge when fresh as pinkish tints remain. On body, especially on flanks above, traces of obscure narrow whitish streaks or bands, one along intersections of each row of scales. Inside gill opening yellowish submarginally, greater area reddish. Fins largely pale or transparent brownish white. Entire length of dorsals basally broad bright sulphur yellow band,

Melamphaes megalops Lütken

Melamphaes megalops Lütken, Overs.
Vidensk. Selsk. Forh. Kjöbenhavn,
p. 176, pl. 5, figs. 1-3, 1877 (type locality,
South of Azores). — Günther, Rep.
Voy. Challenger, vol. 22, p. 27, pl. 5, fig. B,
1887 (copied). — Brauer, Deutsch.

— Garman, Mem. Mus. Comp. Zool., Fische,
vol. 24, p. 383, 1899 (reference). Guinea, 2000

2000 meters; Bengel Bay, 2500 meters, north coast Africa,
2000 meters; Gulf of Aden, 1200 meters; p. 395 (reference).

— Norman, Ann. Mag. Nat. Hist., ser. 10,
vol. 4, p. 161, August 1929 (lat. 6° to 13° N.,
long. 15° to 21° W., to 1200 meters; lat. 2°
 $49'$ S., long. $9^{\circ} 25'$ W., 800 to 1000 meters;
lat. 24° to 33° S., long. 6° to 12° W., 450 to
1000 meters). — Norman, Discovery Rep.,
vol. 2, Fishes, p. 345, 1930 (lat. 24° to
 25° S., long. 6° to 12° E., to 550 meters;
lat. $2^{\circ} 49' 30''$ S., long. $9^{\circ} 25' 30''$ W., 800 to
1000 meters; lat. 6° to 13° N., long. 15° to
 21° , to 1200 meters). — Roule and Angel,
Rés. Camp. Sci. Monaco, vol. 86, p. 68, 1933
(lat. $30^{\circ} 45' 30''$ N., long. $25^{\circ} 47'$ W., 1000 meters,
Madeira).

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Melamphaes megalops Lütken

Melamphaes megalops Lütken, Overs.

Vidensk. Selsk. Forh. Kjöbenhavn, p. 176, pl. 5, figs. 1-3, 1877 (type locality, South of Azores). — Günther, Rep.

Voy. Challenger, vol. 22, p. 27, pl. 5, fig. B, 1887 (copied). — Brauer, Deutsch.

Tiefsee Exped. ²⁷⁹Saldivia, vol. 15, Fische, p. 281, pl. 13, fig. 2, 1906 (Gulf of Guinea, 2000 to 3500 meters; Bengal Bay, 2500 meters; Northeast coast Africa, 2000 meters; Gulf of Aden, 1200 meters); p. 395 (reference).

— Norman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 161, August 1929 (lat. 6° to 13° N., long. 15° to 21° W., to 1200 meters; lat. 2° $49'$ S., long. 9° $25'$ W., 800 to 1000 meters; lat. 24° to 33° S., long. 6° to 12° W., 450 to 1000 meters). — Norman, Discovery Rep., vol. 2, Fishes, p. 345, 1930 (lat. 24° to 25° S., long. 6° to 12° E., to 550 meters; lat. 2° $49'$ $30''$ S., long. 9° $25'$ $30''$ W., 800 to 1000 meters; lat. 6° to 13° N., long. 15° to 21° , to 1200 meters). — Roule and Angel, Rés. Camp. Sci. Monaco, vol. 86, p. 68, 1933 (lat. 30° $45'$ $30''$ N., long. 25° $47'$ W., 1000 meters, Madeira).

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Plectromus megalops Goode and Bean,
Oceanic Ichth., p. 181, 1895 (copied).

Plectromus macrophthalmus Gilchrist,
Marine Investig. South Africa, vol. 2, p.
205, pl. 13, fig. 2, 1904 (type locality,
Cape Point Light-house bearing S. 83° E.,
distant 35½ miles, in 360 fathoms);
Rep. Fisher. Marine Surv. South Africa,
~~and~~ Spec. Rep. No. 3, ^{pt. 1,} p. 66, 1922
(off South Africa, 755 to 1014 fathoms).
— Barnard, Ann. South African Mus.,
vol. 21, p. 369, pl. 15, fig. 2, 1925 (off
Cape Point and Table Bay, 360 to 1014
fathoms).

Depth $3\frac{3}{4}$; head $2\frac{3}{4}$, width $2\frac{1}{3}$.
Snout $5\frac{1}{2}$ in head from snout tip;
eye $3\frac{3}{5}$, greatly exceeds snout,
subequal with interorbital; maxillary
reaches $\frac{3}{4}$ in eye, expansion $1\frac{2}{3}$ in
eye, length $2\frac{1}{5}$ in head from snout
tip; interorbital $3\frac{3}{5}$, low, convex.
Gill rakers $5 + 15$, lanceolate, $1\frac{3}{5}$
in eye or twice length of gill
filaments.

Scales ^(pockets) 27 in lateral series to
caudal base and 3 more on latter;
8 above anal fin origin, 10
predorsal forward to occiput
nearly opposite hind eye edge.
Scales very caducous, all fallen.

D. II; 12, fin origin little
premedian, fin height $2\frac{1}{8}$? in
total head; A. I, 10, fin origin
below last fourth of dorsal base,

Hepatus flavoguttatus (Kittlitz).

Acanthurus flavoguttatus Kittlitz, Mus.

Senckenberg., Band 1, 1834, p. 195, plate
13, fig. 5. Caroline Islands. — Günther,
Journ. Mus. Godeffroy, band 4, 1875, p. 112
(copied).

Acanthurus bettzi Valenciennes, Hist. Nat.
Pois., vol. 10, 1835, p. 162. no locality.

According to Kittlitz greenish brown,
with 8 longitudinal yellowish waved
lines on body, 3 on dorsals and anals
and 3 transversely on caudal. Head
and breast spotted with yellowish.
Length 127 mm.

fin height $2\frac{1}{4}$? in total head;
caudal (damaged) apparently forked;
least depth of caudal peduncle 4 in
its length or $4\frac{4}{5}$ in total head;
pectoral reaches $1\frac{7}{8}$ to caudal base
or equals head; ventral inserted well
before pectoral, fin reaches vent,
 $1\frac{2}{5}$ in total head.

Body brown. Head black,
also belly and abdomen. Iris
slate black. Inside mouth and
gill opening black.

North and South Atlantic.
A striking species, known chiefly by
its large eyes. Other features are
the long slender caudal peduncle
and the equally long paired fins.

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Acanthurus carinatus Schneider, Syst.

Ichth. Bloch, 1801, p. 216, Arabia.

D. VIII, 32; A. III, 29. Caudal deeply
lunate. Brownish ^{gray}, with 15 to 17 longitudinal
whitish or bluish lines, separated by
dark interspaces. Vertical fins black,
bordered all around with blue.
Length 400 mm. (Klunzinger.)

We have examined a single example,
21294 U. S. N. M., without data, 157 mm.
long. It has black circle at shoulder
and hind caudal edge white.

U. S. N. M., No. 89253. Lat. $24^{\circ}31'5''$,
long. $12^{\circ}15'30''$ E., 450 to 550 meters.

Discovery Collection.

Length 40 mm, caudal tips
broken.

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Melamphaes cristiceps Gilbert

Melamphaes cristiceps Gilbert, Proc. U. S. Nat. Mus., vol. 13, p. 60, 1890 (1891) (type locality, Off North West United States, Albatross Station 3009, in 859 fathoms). ✓

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). — Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 279, 1906 (diagnosis in key). — Gilbert, Proc. U. S. Nat. Mus., p. 395 (reference).

2000 meters; off California lat. 33° to 35° N., 1610 meters); Discovery Rep., vol. 2, Fishes, p. 346, 1930 (lat. 33° to 38° S., long. 16° E to 22° W., 1310 to 2000 meters). — Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 6, p. 20, fig. 8, December 1933 (lat. $22^{\circ}42'33''$ N., long. $14^{\circ}23'$ W., ^{8000 feet}). Plectromus cristiceps Goode and Bean, Oceanic Ichth., p. 518, 1895 (reference). — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 843, 1896 (compiled). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., 1928 (1930), pt. 2, p. 233 (reference).

269

Melamphaes cristiceps Gilbert

Melamphaes cristiceps Gilbert, Proc.
U. S. Nat. Mus., vol. 13, p. 60, 1890
(1891) (type locality, Off North West
United States, Albatross Station 3009, in
859 fathoms). ✓

vol. 48, p. 324, 1915 (off San Clemente
Island, Southern California, 505 to
599 fathoms). — Horman, Ann. Mag.
Nat. Hist., ser. 10, vol. 4, p. 162,
August 1929 (lat. $39^{\circ}33'N.$, long. $71^{\circ}16'W.$, 2155 meters; lat. $33^{\circ}54'S.$,
long. $16^{\circ}04'E.$, 1310 to 1410 meters;
lat. $38^{\circ}20'S.$, long. $22^{\circ}18'W.$, 1800 to
2000 meters; off California lat. 33° to
 $35^{\circ}N.$, 1610 meters); Discovery Rep.,
vol. 2, Fishes, p. 346, 1930 (lat.
 33° to $38^{\circ}S.$, long. $16^{\circ}E$ to $22^{\circ}W.$, 1310
to 2000 meters). — Parr, Bull. Bingham Oceanogr.

Coll., vol. 3, art. 6, p. 20, fig. 8, December 1933 (lat. $22^{\circ}42'33"N.$, long. $74^{\circ}23'$, ^{8000 feet}).

Plectromus cristiceps Goode and Bean,
Oceanic Ichth., p. 518, 1895 (reference).

— Jordan and Evermann, Bull. U. S. Nat. Mus.,
no. 47, pt. 1, p. 843, 1896 (compiled). — Jordan,
Evermann, Clark, Rep. U. S. Comm. Fisher., 1928 (1930), pt. 2,
p. 233 (reference).

of gill - filaments
Scales with 49 basal radiating
striae, apical striae 108; cheets w
6 rows of scales; scales small
and crowded on median predorsal
and front of breast. First dorsal
spine $5\frac{1}{2}$ in head; last thorn $3\frac{2}{3}$
sixth dorsal ray $2\frac{1}{3}$; third anal
spine $2\frac{5}{6}$; sixth anal ray 3. Hind

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no
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Plectromus (Melamphaes) cristiceps
Townsend and Nichols, Bull. Amer.
Mus. Nat. Hist., vol. 52, art. 1, p. 12,
pl. 2, fig. 2, May 16, 1925 (off Todor
Santos Bay; Point St. Bartholome;
451 to 868 fathoms).

Melamphaes beanii (not Günther)
Goode and Bean, Oceanic Ichth., p.
179, 1895 (part).

Melamphaes frantous Garman, Mem.
Mus. Comp. Zool., vol. 24, p. 67, 1899
(type locality, lat. $23^{\circ}59'N$, long. $108^{\circ}40'W$, 995
fathoms; lat. $23^{\circ}16'N$, long. $107^{\circ}31'W$, 852 fathoms), p.
383 (reference).
¹ — Brauer, Deutsch. Tiefsee Exped.
Valdivia, vol. 15, Tiefsee Fische, p.
285, pl. 13, figs. 6-7, 1905 (off Sierra
Leone, 3070 meters; Gulf of Guinea,
3000 meters), p. 395 (reference).

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Depth $3\frac{2}{5}$ to $3\frac{3}{4}$; head $2\frac{2}{5}$ to $2\frac{3}{5}$, width 2 to $2\frac{1}{4}$. Snout $3\frac{3}{4}$ to $4\frac{1}{4}$ in head from snout tip; eye $6\frac{3}{5}$ to 8, $1\frac{1}{2}$ to $1\frac{4}{5}$ in snout, 2 to $2\frac{3}{4}$ in interorbital; maxillary reaches $\frac{4}{5}$ ⁱⁿ to slightly beyond eye, expansion $1\frac{1}{5}$ to $1\frac{1}{3}$ in eye, length $2\frac{1}{8}$ to $2\frac{2}{5}$ in head from snout tip; interorbital $3\frac{1}{6}$ to $3\frac{2}{5}$, convex, elevated. Gill rakers 8 or 9 + 19 to 21, lanceolate, 1 to $1\frac{1}{5}$ times eye; gill filaments $\frac{3}{5}$ gill rakers.

Scales (pockets) 27 or 28 in lateral axial series to caudal base and 3? more on latter; 9 transversely, 9 predorsal forward

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curved; usually first, second, fourth, sixth, eighth, tenth, twelfth, fourteenth, sixteenth and eighteenth much wider; in young these wider bands only ones present, the intervening gradually appearing with age; the alternating lines always conspicuously narrower than fundamentals, also intervening brown areas on middle of trunk and front of tail with many close-set, small, dusky or blackish spots in adults. Light lines all extend on vertical fin, variably converging, more or less as broken bars and spots, on soft dorsal and anal. Caudal dusky-brown with 2 whitish transverse basal lines and outer half variably with transverse series of whitish lines, variously broken as U-shaped. Borders of soft vertical fins all narrowly bluish. Pectoral brownish. Ventrals dusky, front border blue and several blue lines. Young with outer half of caudal uniformly pale. Iris dusky.

Zanzibar, East Indies, Melanesia, Polynesia. A very handsome species though the light lines variable. In one of our adult examples the fourteenth loops over the caudal peduncle and joins with the sixteenth on the left side of the body. In a young example the posterior whitish lines are nearly straight and parallel on the

nearly opposite hind eye edge at occiput. Scales very caducous, mostly fallen. Scales with 3 basal radiating striae; 30 to 35 circuli, more or less complete.

D. II or III, 12 or 13, fin height $3\frac{2}{3}$? in total head length; A. I, 9, fin height 3?, fin origin below last fourth of dorsal fin base; caudal (damaged)?; least depth of caudal peduncle 4 to $4\frac{3}{5}$, or $2\frac{1}{2}$ to $2\frac{2}{3}$ in its own length; pectoral $1\frac{1}{6}$ to $1\frac{3}{5}$ in head, rays 14 or 15; ventral rays I, 7, fin $2\frac{1}{4}$ to 3 in total head.

Head blackish brown. Iris neutral black. Inside gill opening black. Fins and body brownish.

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Depth $1\frac{2}{3}$ to $1\frac{3}{4}$; head $2\frac{3}{4}$ to $3\frac{1}{3}$, width $1\frac{7}{8}$ to 2 . Snout $2\frac{4}{5}$ to 3 in head from snout tip; eye $3\frac{1}{2}$ to $3\frac{4}{5}$, 1 to $1\frac{1}{3}$ in snout, greater than interorbital; maxillary to front nostril in vertical, $3\frac{1}{4}$ to $3\frac{1}{2}$ in head; interorbital $3\frac{4}{5}$ to $4\frac{1}{5}$, broadly convex; preopercle spine along upper edge $3\frac{4}{5}$ to $6\frac{3}{4}$, much shorter in very young. Gill rakers $6+12$, lanceolate, short, $\frac{1}{3}$ of gill filaments, which $1\frac{1}{2}$ in eye.

Scales 60 to 70 between gill opening and caudal base; 12 or 13 scales above lateral line, 34 or 35 below. Scales with 3 to 6 basal radiating striae; apical denticles 21 to 34, each with rather slender moderately long rootlet and 3 or 4 series transversely of small basal spinules. Circuli five. D. XIII, 20, I to 21, I, last spine $1\frac{1}{4}$ to $1\frac{1}{2}$ in total head length, seventh ray $2\frac{2}{5}$ to $2\frac{3}{4}$ in combined head and body; A. III, 18, I or 19, I, third spine $1\frac{7}{8}$ to 2 in total head length, sixth ray 1 to $1\frac{1}{8}$; least depth of caudal peduncle $2\frac{1}{8}$ to $2\frac{5}{8}$; pectoral $10\frac{1}{8}$ to $1\frac{1}{6}$; ventral $2\frac{3}{4}$ to $2\frac{7}{8}$.

Largely blackish-brown, with age becoming a little paler or more brownish on sides medially and abdomen. Eighteen transverse or vertically placed whitish lines, variably arched, or with upper and lower portions inclined backwards, those in tail posteriorly usually greatly

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North and South Atlantic, Pacific
Oceans.

U.S.N.M., No. 44288. Type.

Albatross Collection

3009. Length 113 mm.

U.S.N.M., No. 60249.

off Cape Edgecombe. In 922 fathoms.
Length?

U.S.N.M., No. 83855.

Albatross Collection

2685. Length 148 mm, caudal tips brown.

U.S.N.M., No. 87568.

Albatross Collection.

Length 140 mm.

792

Holacanthus coeruleus (Ehrenberg) Cuvier,
Hist. Nat. Poiss., vol. 7, 1831, p. 145, 194.
Nassaua. — Klunzinger, Fisch. Roth.
Meer., 1884, p. 61.

Holacanthus striatus Rüppell, Neue Wirbelth.
Fisch., 1839, p. 32, plate 10, fig. 2.
— Günther, Cat. Fish. Brit. Mus., vol. 2,
1860, p. 53.

Acanthochaetodon striatus Bleeker, Atlas
Ichth. Ind. Néerl., vol. 9, 1877, p. 68, plate (8)
370, fig. 3.

Chaetodon microlepis Bleeker, Nat. Tijds.
Ned. Indie, vol. 4, 1853, p. 257. Cauer, Sumatra.

Holacanthus ibura (Montrouzier) Thollière,
Faun. Woodlark, 1859, p. 169 (name in
synonymy).

Holacanthus alternans var. meleagris Alcock,
Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896,
p. 303, Falk Straits.

Holacanthus nicobariensis (non Schneider) Jordan and Seale,
Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 349 (Pago Pago).

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Melamphaes crassiceps (Günther)

Scopelus crassiceps Günther, Ann. Mag. Nat. Hist., ser. 2, vol. 2, p. 185, 1878 (type locality, Atlantic Ocean, 1500 fathoms; Antarctic Ocean, 675 fathoms).

Melamphaes crassiceps Günther, Rep. Voy. Challenger, vol. 22, p. 28, pl. 8, fig. B, 1887 (between Cape of Good Hope and Kerguelan Island, 1375 fathoms).

— Norman, Ann. Mag. Nat. Hist. ser. 10

— Brauer, Deutsch. Tiefsee. Exped. Valdivia, vol. 15, Tiefsee Fische, p. 279, 1906 (diagnosis in key), p. 395 (reference).

Oceanic Ichth., p. 180, pl. 53 fig. 200a, 1895 (copied). — Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 843, 1896 (compiled). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., 1928 (1930), pt. 2, p. 233 (reference).

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Scopelus crassiceps Günther, Ann. Mag. Nat. Hist., ser. 2, vol. 2, p. 185, 1878 (type locality, Atlantic Ocean, 1500 fathoms; Antarctic Ocean, 675 fathoms).

Melamphaes crassiceps Günther, Rep. Voy. Challenger, vol. 22, p. 28, pl. 8, fig. B, 1887 (between Cape of Good Hope and Kerguelan Island, 1375 fathoms).

— Norman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 163, August 1929 (type from lat. $46^{\circ}46'S$, long. $45^{\circ}31'E$, 2500 meters).

(— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference).

Plectromus crassiceps Goode and Bean, Oceanic Ichth., p. 180, pl. 53 fig. 200a, 1895 (copied). — Jordan and Evermann,

Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 843, 1896 (copied). — Jordan, Evermann,

Clark, Rep. U. S. Comm. Fisher., 1928 (1930), pt. 2, p. 233 (reference).

Depth $3\frac{3}{5}$ to 4; head $2\frac{7}{8}$ to 3, width $1\frac{4}{5}$ to 2. Snout 3 to $3\frac{1}{3}$ in head from snout tip; eye $7\frac{1}{2}$ to 8, 2 to $2\frac{1}{5}$ in snout, 3 to $3\frac{3}{4}$ in interorbital; maxillary extends eye diameter behind eye, length $1\frac{7}{8}$ to 2 in head from snout tip; interorbital 2 to $2\frac{1}{5}$, convexly elevated. Gill rakers $6 + 13$, lanceolate, equal 2 eye diameters; gill filaments $\frac{2}{5}$ gill rakers.

Scales (pockets) 24 in axial lateral series to caudal base and 4 more on latter; 11 above anal, 10 predorsal forward to occiput, not quite forward far as eye. Scales very caducous, all now fallen.

D. III, 10 or 11, fin origin well premedian, fin height 2? in total

Zanzibar). — Beaufort, Bijl. Dierb.
 Amsterdam, deel 19, 1913, p. 125 (Vaonela,
 Waigiu). — Weber, Siboga Exped., bund 65,
 1913, p. 311 (Pambola, Saleyer, Ambonia, Elat,
 Rotti). — Pellegrin, Bull. Soc. Zool. France,
 vol. 39, 1914, p. 227 (Diego Suarez, Madagascar).
 — Ogilby, Mem. Queensland Mus., vol. 3, 1915,
 p. 110 (Queensland).

Holacanthus nicobariensis var. semicirculatus
Day, Fishes of India, pt. 1, 1875, p. 112,
 plate 28, fig. 6.

Acanthochaetodon semicirculatus Bleeker,
 Atlas Ichth. Ind. Néerl., vol. 9, 1877, p. 69,
 plate (8) 370, fig. 5 (Sumatra, Java, Celebes,
 Timor, Buru, Ceram, Ambonia, Goram, Waigiu).

Holacanthus semicircularis De Vis, Proc. Linn. Soc. New South Wales, vol. 9, 1884, p. 457 (Queensland).

Holacanthus alternans Cuvier, Hist. Nat.

Poiss., vol. 7, 1831, p. ¹⁹³44. Madagascar.

Playfair, Fishes of Zanzibar, 1866, p. 38

(Zanzibar and Aden). — Pellegrin, Bull. Soc. Zool.
 France, vol. 39, 1914, fig. 227 (Fort Dauphin, Madagascar).

head; A. I, 8, origin about opposite last fourth in dorsal fin base, fin height $3\frac{1}{2}$?; caudal (damaged) emarginate, small; least depth of caudal peduncle 3 to $3\frac{7}{8}$, 3 in its own length; pectoral reaches $2\frac{3}{5}$ to caudal base, length $1\frac{2}{5}$ in total head; ventral 2?

Body brown. Head black. Iris neutral black. Inside mouth and gill opening black.

Atlantic and Antarctic Oceans. Although the young examples listed below are rather poorly preserved they seem to agree with Günther's figure and the definition by Norman.

790

Holacanthus semicirculatus Cuvier.

Holacanthus semicirculatus Cuvier, Hist.

Nat. Poiss., vol. 7, 1831, p. 191, plate 183.

Timor, Buru, Waigiu, Port Praslin, New Ireland. — Lesson, Voy. Coquille, Poiss., vol. 2, pt. 1, 1830 (1831), p. 173, plate 30, fig. 3 (Port Praslin, New Ireland; Offack Bay, Waigiu; Cajeli Bay, Buru).

— Günther, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 53 (Fiji, Ambona). — ~~Day, Fishes of~~
~~Malacca, pt. 1, 1875, p. 1, plate 1, fig. 6.~~

Von Martens, Preuss. Exped. Ost Asien, 1876, p. 388 (Ambona). — ~~De Vis, Proc.~~

~~Linn. Soc. New South Wales, vol. 9, 1884, p.~~
~~(Queensland).~~

— Meyer, Ann. Soc. Espan. Hist. Nat. Madrid, vol. 14, 1885, p. 18 (Rubi,

New Guinea). — Elera, Cat. Fauna Filip., vol. 1, 1895, p. 489 (Mindoro). — Jatunow

and Lentz, Abhandl. Senckenberg. Nat. Ges., band 21, heft 1, 1897, p. 503 (Bawilippe,

U. S. N. M., No. 89918. Lat. $34^{\circ}50'$
N., long. $64^{\circ}20'$ W.

Museum of Comparative Zoology.
Length 36 to 37 mm, caudal tips
broken. Two examples.

8936. Utulayan Island, Lagonoy Gulf. ⁷²⁹
June 18, 1909. Length 230 mm.

8839. Maculabo Island. June 14, 1909.
Length 212 mm.

3910. Makesi Island, Palawan.
April 5, 1909. Length 148 mm. [1497.]

7087. Port San Pio Quinto, Camiguin
Island. November 11, 1908. Length 234 mm.

11401. Sabatan Island. November 8, 1908.
Length 123 mm.

9120 and 9121. San Roque, Leyte Island.
July 29, 1909. Length 155 to 187 mm.

A 616. Singaan Island. September 21, 1909.
Length 233 mm.

A 1458 and A 1459. Kait Point, Libani Bay,
Celebes. December 29, 1909. Length 395 to 410 mm.

A 1580. Soo Wan, Eastern Formosa. January
29, 1910. Length 178 mm.

278

Melamphaes atlanticus horman

Melamphaes atlanticus horman, Ann.
Mag. Nat. Hist., ser. 10, vol. 4, p.
1605, August 1929 (type locality,
lat. $33^{\circ}54'S.$, long. $16^{\circ}04'$, in 850 to
950 meters; lat. 46° to $53^{\circ}S.$, long.
 35° to $46^{\circ}W.$, 1025 to 1350 meters);
Discovery Rep., Fishes, vol. 2, p. 346,
fig. 38, 1930 (types; paratypes).

Depth $3\frac{4}{5}$ to 4; head nearly 3. Snout little more than 4 in head; eye $5\frac{2}{3}$ to $6\frac{1}{5}$; ~~maxillary~~ maxillary reaches $\frac{3}{4}$ in eye; teeth minute, villiform, apparently uniserial in both jaws; interorbital $3\frac{1}{4}$ in head. Lower gill rakers 19 to 21.

Scales 26 to 28 in longitudinal series. Head rough, cavernous, ridges and crests well developed, margins usually denticulated; strong internasal spine; preopercle with well marked ridges ending in spinous points, stronger on lower edge; several spines at angle of preopercle ridge; opercle above with 2 strong diverging ridges, with many very feeble ridges between each ending in point.

Dark blotch on opercle. Broad
 greenish yellow lateral band on
 dorsal basally. Sulphur yellow
 paired band begins at hind end of
 lower jaw and extends along edge
 of abdomen and anal to lower radi-
 mentary caudal rays. A yellowish
 line delimits back, begins behind
 opercle tip along fourth horizontal
 row of scales below lateral line
 far as end of depressed pectoral.

Length 137 mm.

2356 to 2359, 2647, 2648 [438], 7935.

Corregidor Light, S. 87° W., 7.2 miles

($14^{\circ}24'15''$ N., $120^{\circ}41'30''$ E.), Manila

Bay. February 9, 1909. Length 125 to 190 mm.

6634. Manila market. April 14, 1909.

Length 215 mm.

18651 to 18653. Manila market. December 5,

1908. Length 215 to 245 mm.

D. III, 13 to 15, distance from origin to snout end $\frac{3}{4}$ to $\frac{4}{5}$ of space from origin to caudal base; A. I, 9 to 11, origin below posterior $\frac{1}{2}$ half of dorsal, $1\frac{1}{2}$ to $1\frac{3}{5}$ times as distant from snout end as from caudal base; caudal peduncle nearly 3 times long as deep, $3\frac{2}{5}$ to $3\frac{3}{5}$ in length of fish; pectoral rays 15, nearly long as head, reaches $\frac{1}{2}$ in anal or beyond; ventral I, 7, origin below or little behind pectoral base. Length 125 mm. (Norman.)

South Atlantic.

jaws equal; teeth small, 10 front upper canines; interorbital $5\frac{1}{2}$, low; hind preopercle edge finely serrate; suborbital depth $1\frac{1}{5}$ in eye.

Scales 46 in lateral line; 4 above, 9 or 10 below, predorsal scales extend forward opposite eye center; 3 rows on cheek to preopercle ridge, flange broadly scaleless; basal half of caudal finely scaled, also fine scales at pectoral base.

D. X, 9, I, last spine $2\frac{4}{5}$ in head, seventh ray $1\frac{3}{4}$; A. III, 7, I, third spine 3, first ray $2\frac{1}{4}$; caudal $1\frac{1}{5}$, emarginate, lobes broad and obtuse; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{1}{5}$; ventral $1\frac{1}{5}$, first ray little prolonged.

Upper half of body rose red, lower yellowish with silvery sheen.

281

Melamphaes nigrofulvus Garman

- Melamphaes nigrofulvus Garman, Mem.
Mus. Comp. Zool., vol. 24, p. 64, pl. D,
fig. 2, pl. 72, fig. 2, 1899 (type locality,
lat. $6^{\circ}21'N.$, long. $80^{\circ}41'W.$, in 1793
fathoms, Gulf of Panama), p. 383 (reference).
— Brauer, Deutsch. Tiefsee Exped. Valdivia,
vol. 15, Fische, p. ⁽²⁷⁹⁾282, pl. 13, fig. 3, 1906
(Gulf of Guinea, lat. $3^{\circ}55'S.$, long. 7°
 $48'5''E.$, 3000 meters), p. 395 (reference).
— Norman, Ann. Mag. Nat. Hist., ser. 10,
vol. 4, p. 166, August 1929 (compiled).

Melampus nigriceps (Zugmayer)

? Poromitrella nigriceps Zugmayer, Bull.
Inst. Océan. Monaco, 25. 193, January
p. 7, January 20, 1911 (type locality,
lat. $37^{\circ}4' N.$, long. $22^{\circ}39' W.$, 3000 meters,
off Azores); Rés. Camp. Sci. Monaco,
vol. 35, p. 100, pl. 5, fig. 2, 1911 (type).
— Horman, Ann. Mag. Nat. Hist., ser.
10, vol. 4, p. 153, August 1929 (note).

Depth $3 \frac{2}{5}$; head $2 \frac{1}{3}$. Snout 4 in head from snout tip; eye $8 \frac{1}{5}$, ~~and~~ 2 in snout; maxillary reaches opposite hind eye edge, length $2 \frac{2}{3}$ in head from snout tip; teeth small, subequal, in 1 or 2 series in jaws, none on palate; interorbital rather high. Gill rakers $8 + 20$, long as eye.

Scales 27 in longitudinal series, ^{of which} last 2 on caudal base; 8 transversely. Skull ridges more or less serrated; prominent expansion each side of crown, bends outward, bears spine at scapular end; prominent ridge above and forward of each orbit, another above each maxillary; prominent spine on middle of internarial; 3 small close set

Gill rakers $6+9$, short points, $\frac{1}{3}$ of gill filaments, which $1\frac{3}{4}$ in eye.

Tubular scales 41 to 44 in lateral line to caudal base and 1 or 2 more on latter; 4 above, 11 below, 12 to 14 predorsal extend forward opposite eye center, 3 rows on cheeks with preopercle flange broadly naked. Suprascapula denticulated. Scales with 8 basal radiating striae; 96 to 100 apical denticles, small, weak, with 1 or 2 transverse series of small basal elements; circuli very fine.

D. X, 9, I, fourth spine $2\frac{3}{4}$ to $2\frac{4}{5}$ in total head length, seventh ray $1\frac{3}{4}$ to $1\frac{4}{5}$; A. III, 7, I, third spine $2\frac{4}{5}$ to 3, sixth ray $1\frac{7}{8}$ to $1\frac{9}{10}$; least depth of caudal peduncle 3 to $3\frac{3}{5}$; pectoral $1\frac{1}{10}$ to $1\frac{1}{8}$; ventral $1\frac{1}{4}$ to $1\frac{1}{3}$;

spines at angle on front ridge of preopercle, 5 short ones on lower section and 3 or 4 on upper of hind ridge; opercle with longitudinal ridge ending in short spine.

D. III, 12, fin height 4 in total head length, fin origin slightly postmedian; A. I, 9, fin height $4\frac{7}{8}$, origin about last $\frac{2}{5}$ of dorsal base; caudal 3? (figured nearly truncate); least depth of caudal peduncle $4\frac{1}{4}$; pectoral $1\frac{1}{5}$?, reaches hind end of anal base; ventral I, 7, fin $2\frac{1}{4}$ in head.

Head brown, dark on opercles and under surfaces. Trunk brown, tail pale. Iris brown.

Case 179

360

Synagris flaviventris (Steindachner)
Heterognathodon flaviventris Steindachner,
Verhandel. zool. botan. Gesellsch. Wien,
vol. 16, 1866, p. 778, pl. 13, fig. 6, Zanzibar.

Depth $2\frac{3}{4}$ to $2\frac{4}{5}$; head $2\frac{3}{4}$ to $2\frac{7}{8}$,
width $2\frac{1}{5}$ to $2\frac{1}{4}$. Snout 3 to $3\frac{1}{10}$ in
head from snout tip; eye 4 to $4\frac{1}{4}$, $1\frac{1}{4}$
in snout, greater than interorbital;
maxillary reaches $\frac{1}{5}$ in eye, expansion
 $2\frac{1}{8}$ to $2\frac{1}{5}$ in eye, length $2\frac{3}{5}$ to $2\frac{3}{4}$
in head from snout tip; teeth fine,
in bands in jaws of 5 to 7 irregular
rows with outermost row little enlarged
though less so below; interorbital 5
to $5\frac{1}{4}$, but slightly elevated and
flattened medially; hind preopercle
edge very minutely serrated above
corner, lower edge nearly or quite
entire; broad preopercle and preorbital
flanges with marginal venules.

285

Fins all pale. Length? (Garman.)

Eastern Pacific, Atlantic.

As Norman suggests quite likely Paromitrella nigriceps Zugmayer is abnormal, as it is figured and described with a divided dorsal with 12 spines in the first section and 5 rays in the second.

Its characters, otherwise than the rather long slender caudal peduncle, seem largely in agreement with the present species.

359

band ~~about~~ wide as pupil from
snout tip to caudal base medially.
Dorsals with edge and 2 median
longitudinal bands yellowish, also
2 on anals. Ventral clear, first
and second rays yellowish. Length
197 mm. (Bleeker.)

East Indies, China, Melanesia. I
overlooked Günther's record for
the Louisiades and therefore failed to
include this species in my Fishes of
Oceania. According to Bleeker it
is known by the yellow bands on
dorsals and anals, also median
lateral band, caudal not prolonged
in filament and mandibular teeth
strong and few.

286

Melamphaes unicornis Gilbert

Melamphaes unicornis Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 615, pl. 77, fig. 1, 1903 (1905) (type locality, Vicinity of Kauai, 632 to 881 fathoms, Albatross Station 4142; vicinity of Kani, 480 to 577 fathoms, Albatross Station 4005). — Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 279, 1906 (diagnosis in key, p. 395 (reference)). — Herman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 164, August 1929 (Günther's example from lat. $18^{\circ}37'S$, long. $34^{\circ}28'W$, 1235 meters, off Pernambuco).

Scopelus
Melamphaes crassiceps (part) Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 185, 1878 ("Atlantic and Antarctic Oceans, 675 to 1500 fathoms").

Melamphaes crassiceps Günther, Rep. Voy. Challenger, vol. 22, p. 28, 1887 (example from off Pernambuco, Station 120, 675 fathoms. 60 mm. long).

— Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 279, 1906 (diagnosis in key), p. 395 (reference). ~~41395~~
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Melamphaes unicornis Gilbert

Melamphaes unicornis Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 615, pl. 77, fig. 1, 1903 (1905) (type locality, vicinity of Kauai, 632 to 881 fathoms, Albatross Station 4142; vicinity of Kani, 480 to 577 fathoms, Albatross Station 4005). — Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 279, 1906 (diagnosis in text, p. 395 (reference)). — Herman, Ann. Mag. Nat. Hist., ser. 10, vol. 4, p. 164, August 1929 (Günther's example from lat. $18^{\circ}37'S$, long. $34^{\circ}28'W$, 1235 meters, off Pernambuco).

Scopelus
Melamphaes crassiceps (part) Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 185, 1878 ("Atlantic and Antarctic Oceans, 675 to 1500 fathoms").

Melamphaes crassiceps Günther, Rep. Voy. Challenger, vol. 22, p. 28, 1887 (example from off Pernambuco, station 120, 675 fathoms, 60 mm long).

Q? Melamphaes maxillaris Garman, Mem. Mus. Comp. Zool., vol. 24, p. 66, pl. D, fig. 1, 1899 (type locality, lat. $1^{\circ}7'N$, long. $80^{\circ}21'W$, in 1573 fathoms), p. 383 (reference).

I have been thinking of you very much lately.
 I hope you are well and happy.
 I am well and hope you are the same.
 I am your affectionate friend,
 Mary

father
? Mrs
Mrs
(typ
→

287

Plectromus (helamphaës) maxillaris
Townsend and Nichols, Bull. Amer.
Mus. Nat. Hist., vol. 52, art. 1, p. 12,
May 16, 1925 (near Santa Barbara
Islands; west of San Diego; 534 to 1076
fathoms).

? Plectromus coronatus Gilchrist and
von Bonde, Rep. Fisher. Mar. Biol.
Surv. South Africa, ^{no.} vol. 3, Spec. Rep.
7, p. 14, 1924 (type locality, off South
Africa, in 500 to 900 fathoms).

— Barnard, Ann. South African Mus.,
vol. 21, pt. 1, p. 369, 1925 (off Table Bay
and St. Helena Bay, 500 to 900 fathoms).

Depth 3; head $2\frac{1}{4}$, width $2\frac{3}{5}$.

Snout $3\frac{1}{4}$ in head from snout tip; eye $5\frac{3}{4}$, $1\frac{1}{2}$ in snout, $1\frac{1}{3}$ in interorbital; maxillary reaches opposite hind eye edge, length $2\frac{1}{4}$ in head from snout tip; interorbital $4\frac{3}{4}$, convexly elevated. Gill rakers $8+15$, lanceolate, twice length of gill filaments or equals eye.

Scales 25 in lateral axial series; 8? transversely above anal fin origin, 10? predorsal. Scales all fallen and counts largely from Gilbert's figure.

D. II, 12, fin height $3\frac{1}{8}$? in total head length, fin origin slightly postmedian; A. I, 8, fin height $4\frac{2}{3}$, origin about opposite last

237 to 240 mm.

9206 and 9207. Hermano Major Island.
May 8, 1909. Length 235 to 237 mm.

5159. Jolo, Jolo Island. March 6, 1908.
Length 263 mm.

4667 and 4668. Limbanex Cove.
January 14, 1908. Length 248 to 275 mm.
8731. Little Santa Cruz Island.

May 28, 1908. Length 182 mm.

7424. Malcochin Harbor, Linapacan
Island. December 18, 1908. Length 278 mm.

9046. Panabutan Bay, Mindanao.
February 6, 1908. Length 220 mm.

6384 and 6385. Port Janelo. July 13,
1908. Length 230 to 238 mm.

7042. Port San Pio Quinto, Camiguin
Island. November 11, 1908. Length 228 mm.

fifth of dorsal fin base; caudal
(damaged) apparently convex?; least
depth of caudal peduncle $5\frac{1}{4}$ in
total head length, 2 in its own length;
pectoral reaches $1\frac{1}{3}$ to caudal base,
fin $1\frac{1}{3}$ in total head length; ventral
origin opposite pectoral origin,
median, fin $2\frac{3}{5}$ in total head.

Body largely dark brown.
Head contrasted, black. Iris
neutral black. Fins brown,
blackish at caudal base.

South Atlantic, Hawaii,
Pacific coast of South America?
In this species dorsal origin
postmedian and long pectoral
reaches over $\frac{2}{3}$ to caudal base.

927

8957, 8958, 16606, 16607. Alibijaban
Island, Ragay Gulf, Luzon. March
6, 1909. Length 232 to 242 mm.

6513. Balikisan Bay. July 17, 1908.
Length 260 mm.

13400. Bito Lake Abuyog, Leyte.
July 26, 1909. Length 183 mm.

9820. Cagayan, Sulu Island.
January 8, 1909. Length 225 mm.

270. Cagayanes Island. March 31,
1909. Length 215 mm.

8863 to 8865. Camimo Island. June
15, 1909. Length 252 to 290 mm.

A 1539. Doc Can Island. January 7, 1910.
Length 215 mm.

4586 to 4588. Grande Island reef,
Subig Bay. January 8, 1908. Length

290

Norman when describing Günther's specimen notes that it is 60 mm long, and with 22 lower gill rakers. He thinks Melanophaes maxillaris will likely prove to be the same, though it shows many points of dissimilarity, even when distortion for the specimen may be considered.

Acanthurus striatus Duoy and Gaimard,
Voy. Uranie, Zool., 1824, p. 373, plate 63,
 fig. 3. Marianne Archipelago, Guam.

Acanthurus vittatus Bennett, Fishes of
Ceylon, 1827, plate 2. Ceylon.

Acanthurus barao (Zemtrouzier) Thiollière,
Fauna Woodlark, 1857, p. 179 (name in synonymy).

U.S.N.M., No. 51517.

Vicinity of Kawai, ^{2m} 632 to 881 fathoms.
Albatross Collection 4142. Length 31 mm,
 caudal tip broken. Type.

~~Therapsid marsupial like new species.~~

Analysis of the species.

I. Hepatus. Dorsal spines 8 to 10; dorsal and anal rays subequal; scales variably moderate or small.

ad. Body without any cross bands.

292

Melamphaes triceratops Roule and
Angel

Melamphaes triceratops Roule and
Angel, Rés. Camp. Sci. Monaco, vol.

86, I, p. 66, pl. 3, fig. 32, 1933
(type locality, lat. $33^{\circ}52'N$, long.
 $19^{\circ}16'W$, 3500 meters, north west
of Madeira; west of Flores, Azores,
3000 meters; east of Nova Scotia,
2500 meters). — Parr, Bull.

Bingham Oceanogr. Coll., vol. 3,
art. 6, p. 21, ^{fig. 9 (head)} December 1933 (lat.
 $32^{\circ}N$, long. $64^{\circ}W$, 5000 to 10000
feet).

350

head length, last ray $2\frac{4}{5}$, seventh ray $1\frac{3}{4}$; A. III, 7, I, third spine $3\frac{1}{2}$, first ray $2\frac{1}{2}$; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{1}{8}$; ventral $1\frac{1}{8}$, first ray ending in short filament; caudal $2\frac{3}{4}$ in combined head and body to caudal base and upper lobe ends in short filament.

Rosy above, rose silvery below. Iris yellow, below red. Fins rosy. Dorsals edged yellow above. Anal with longitudinal basal row of yellow spots. Length 225 mm. (Bleeker.)

East Indies, Philippines.

Depth $3\frac{1}{3}$; head $2\frac{3}{5}$. Snout $4\frac{1}{5}$ in head; eye $6\frac{7}{8}$, $1\frac{1}{2}$ in snout; maxillary reaches $\frac{1}{2}$ in eye, length $5\frac{1}{3}$ in head; interorbital rather high; preopercle edge and ridge denticulate, with larger spine at angle of each.

Scales 30 in lateral series, of ~~2~~ which last 3 apparently on caudal base; 8 or 9 transversely. Suborbital crest distinct. Double cranial crest, with 2 strong points forward. Vertical internasal crest.

D. III, 10, origin much nearer snout tip than caudal base, first ray $2\frac{1}{10}$ in total head; A. I, 8, origin close behind base of last dorsal ray base,

Core 129

Synagris nemurus (Bleeker)

Syntex nemurus Bleeker, Act. Soc. Sci.
Ind. Néerland. (Amboina), vol. 2, 1857,
p. 49. Amboina; Nederland. Tijdschr.
Dierk., vol. 1, 1863, p. 240 (Obi Island);
Atlas Ichth. Ind. Néerland., vol. 8,
1876-77, p. 87, pl. (57) 335, fig. 4
(Amboina). ¹/₂ Fowler, Mem. Bishop
Mus., vol. 10, 1928, p. 220 (copied).

Synagris nemurus Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 78 (copied).
¹/₂ Károli, Termesz. Füzetek, Budapest,
vol. 5, 1881, p. 154 (Selita).

Heterognathodon nemurus Meyer, An.
Soc. Españ. Hist. Nat. Madrid, vol. 14,
1885, p. 15 (Cebu). ¹/₂ Elera, Cat. Fauna
Filipinas, vol. 1, 1895, p. 478 (Cebu).

fin height $5\frac{7}{8}$; caudal
damaged; least depth of
caudal peduncle 3, $1\frac{1}{2}$ in its
own length, which 2 in head;
pectoral $1\frac{1}{5}$, reaches opposite
anal origin, rays 13; ventral
origin close behind pectoral
base, rays I, 7, length $1\frac{1}{2}$ in
head.

Length 100 mm without caudal.
(Roule and Angel.)

North Atlantic.

Depth 4; head $3\frac{3}{5}$, profile convex.
 Snout $3\frac{1}{2}$ in head from snout tip;
 eye $2\frac{7}{8}$, greater than snout or
 interorbital; lower jaw slightly
 projects; maxillary reaches $\frac{1}{8}$ in
 eye, expansion $2\frac{2}{3}$ in eye, length
 $2\frac{3}{4}$ in head from snout tip; 6 front
 upper canines and below 8 to 10 outer
 teeth scarcely canine like; bands of
 villiform teeth in jaws with little
 enlarged outer row of teeth; interorbital
 low; hind preopercle edge minutely
 serrate, with slight gash above angle
 and lower edge entire; preorbital
 depth $2\frac{1}{10}$ in eye.

Scales 50 in lateral line, 3 above,
 $\frac{1}{2}$ below, predorsal forward opposite
 eye center, 3 rows on cheeks to preopercle
 ridge and flange ^{broadly} naked.

D. X, 9, I, first spine $3\frac{3}{4}$ in total

295

Genus Malacosarcus Günther

Malacosarcus Günther, Rep. Voy.
Challenger, vol. 22, p. 30, 1887. (Type
Malacosarcus macrostoma Günther,
monotypic.)

Head large, thick, bones very thin,
with wide deep muciferous cavities.
Snout moderate. Eye small. Mouth
cleft wide, obliquely descending
backwards, jaws nearly equal in
front. Maxillary obliquely dilated
behind. Narrow band of villiform
teeth in both jaws, palate toothless.
Gills 4, gill filaments short. Gill
rakers long, needle shaped.
Pseudobranchiae present. Branchiostegals
8. Scales extremely thin, not sculptured,
deciduous, irregular, of moderate size.
Preopercle edge and lower edge of
mandible with minute and distant
spines. One dorsal. Anal spines very
feeble. Caudal emarginate, with broad
basal fold above and below. Ventral
small, inserted some distance behind

pectoral, rays 5.

"Although this fish is only a degraded form of Melamphaës, it will be better to make it the type of a distinct genus, as otherwise the generic definition of Melamphaës would loose much in precision." (Günther.)

in eye, 3 rows on cheek to preopercle ridge and preopercle flange broadly naked.

D. IX, 9, I, first spine $3\frac{4}{5}$ in head, last $2\frac{1}{4}$, sixth ray $1\frac{1}{4}$; A. III, 7, I, third spine $2\frac{9}{10}$, first ray 3; least depth of caudal peduncle 3; ventral $1\frac{1}{10}$, first ray ends in short filament; pectoral $3\frac{4}{5}$ in combined head and body to caudal base; upper caudal lobe $2\frac{3}{4}$, fin deeply forked and lobes sharp pointed.

Rosy above, below paler. Iris yellow or rosy. Two yellow bands from eye, upper above and lower below lateral line to caudal base. Fins rosy. Dorsals with 3 longitudinal yellow bands. Anal uniform. Length 175 mm.

(Bleeker)

East Indies. Known only from the type.

297

Malacosarcus macrostoma (Günther)

Scopelus macrostoma Günther, Ann.
Mag. Nat. Hist., ser. 5, vol. 2, p. 186,
1878 (type locality, Mid Pacific,
2424 fathoms; near Low Archipelago,
2350 fathoms).

Malacosarcus macrostoma Günther,
Rep. Voy. Challenger, vol. 22, p. 30, 1887
(type from lat. $0^{\circ}33'S$, long. $154^{\circ}34'W$,
2425 fathoms; lat. $13^{\circ}28'S$, long. $149^{\circ}30'$,
2350 fathoms). — Goode and Bean,

Oceanic Ichth., p. 182, 1895 (reference).
— Garman, Mem. Mus. Comp. Zool., vol. 24,
p. 383, 1899 (reference). — Brauer, Deutsch.
Tiefsee Exped. Valdivia, vol. 15, Tiefsee
Exped., p. 386, 1906 (reference).
— Fowler, Mem. Bishop Mus., vol. 10, p.
96, 1928 (compiled).

298

Depth rather more than 4;
head 3. Snout obtuse; eye
not quite 6 in head, $1\frac{1}{2}$ in
snout; mouth cleft oblique, very
wide; maxillary reaches far
behind eye to mandibular joint;
hind preopercle edge oblique,
rounded; opercle narrow,
membranaceous. Gill rakers
27, longest nearly twice eye.

D. 13, origin little nearer
snout end than caudal base,
little before vent, last ray
opposite last anal ray; A. 13;
pectoral 10, base narrow, rather
small, scarcely reaches dorsal
origin; ventral 5, very small,
base equidistant from vent and
vertical from pectoral base;
procurent caudal rays extend

^{Can 179} Synagris nematopus (Bleeker)
Dentex nematopus Bleeker, Natuurk.

Tijdschr. Nederland. Indië, vol. 2, 1851,
 p. 219. Bulucomba, Celebes; Atlas Ichth.
 Ind. Néerland., vol. 8, 1876-77, p. 91, pl.
 (68) 346, fig. 4 (Celebes).

Synagris nematopus Günther, Cat. Fishes
 Brit. Mus., vol. 1, 1859, p. 377 (compiled).

Depth 4; head $3\frac{1}{2}$, profile inclined.
 Snout $3\frac{1}{2}$ in head; eye $3\frac{2}{3}$, equals
 snout, greater than interorbital;
 maxillary reaches $\frac{1}{2}$ in eye, length $2\frac{2}{3}$
 in head; jaws subequal; 4 front upper
 canines, none below; teeth in villiform
 series, outer row little enlarged;
 interorbital low; hind preopercle edge
 denticulate, lower entire; preorbital
 depth 2 in eye.

Scales 50 in lateral line; 3 above,
 10 below, predorsal extend forward $\frac{1}{2}$

well forward on caudal
peduncle.

Transparent, sides of
head and abdomen black.

Length 89 mm. (Günther.)

Mid Pacific and near Low-
Archipelago.

East Indies. Bleeker says of all
the East Indian species this has the
shallowest preorbital.

Genus Caulolepis Gill

Caulolepis Gill, Forest and Stream,
vol. 21, p. 84, August 30, 1883.
(Type Caulolepis longidens Gill,
monotypic.)

Body oval or deeply pyriform, compressed, predorsal region elevated, caudal peduncle small. Head deeper than long, cranial portion very declivous. Snout obtuse. Eye moderate, high, advanced, near front profile. Upper jaw protractile. Pair of very long pointed teeth in front of upper jaw, closing in front of lower; similar and still longer pair of pointed lower teeth anteriorly, received in sockets in palate; on side of each jaw 2 or 3 long teeth ending in bulbous tips; row of minute teeth on hind half of maxillaries; palate toothless. Large suborbitals sculptured, with small erect spine. Preopercle angulated down and back, spinigerous at angle. Branchiostegals 8. Opercle extended downwards,

with numerous striae and 3 more diverging ridges down and back into spiniferous angles. Scales foliate, small, pedunculated. Lateral line distinct, as groove parallel with back and continuous to caudal fin base. Dorsal single, begins over upper pectoral axil, with 2 spines and 17 branched rays. Anal short, mostly behind dorsal, with 2 spines and 8 branched rays. Caudal deeply emarginate, with rounded lobes. Pectoral inserted obliquely, moderate, with 1 simple and 14 branched rays. Ventral subabdominal or behind pectoral, with spine and 6 branched rays.

Analysis of Species

a.¹ Lower canines ^{3 in} each side of
mandible. longidens.

a.² Lower canines 4 in each side of
mandible. subulidens.

11442, 11445, 11591. Manila market.

December 12-18, 1908. Length 103 to 140 mm.

1339, 1340, 1342, 9768, 9769, 10567,
10569, 10570, 10571. San Fernando Point
Light, N. 39° E., 8.4 miles ($16^{\circ}30'36''$ N.,
 $120^{\circ}11'06''$ E.), Luzon. May 11, 1909.

Length 180 to 240 mm.

6915. Tacloban market. July 25, 1909.
Length 160 mm.

11459. Kowloon market, China.
September 8, 1908. Length 128 mm.

A1012. Data? Length 108 mm.

303

Caulolepis longidens Gill

Caulolepis longidens Gill, Forest and Stream, vol. 21, p. 84, August 30, 1883 (no locality given [= Gulf Stream]);

Proc. U. S. Nat. Mus., vol. 6, p. 254, 1884 (lat. $39^{\circ}27'10''N.$, long. $69^{\circ}56'20''$, 1346 fathoms). — Günther, Rep. Voy. Challenger, vol. 22, p. 25, 1887 (copied).

— Goode and Bean, Oceanic Ichth., p. 185, pl. 55, fig. 204^a, 1895 (type).

— Zugmayer, Rés. Camp. Sci. Monaco, vol. 84, p. 83, 1933 (lat. $38^{\circ}55'N.$, long. $34^{\circ}07'30''W.$, in 3000 meters, ~~Azores~~ Madeira).

(reference) — Sarr, un. Ingram arrang.

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). — Brander, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 286, 1906 (Gulf of Guinea, lat. $3^{\circ}55'S.$, long. $7^{\circ}48'5''E.$, 3000 meters), p. 396 (reference).

Coll., vol. 3, art. 6, p. 10, December 1933 (lat. 21° to $23^{\circ}N.$, long. 72° to 77° , 7000 feet).

303

Caulolepis longidens Gill

Caulolepis longidens Gill, Forest and Stream, Vol. 21, p. 84, August 30, 1883 (no locality given [= Gulf Stream]);

Proc. U. S. Nat. Mus., vol. 6, p. 254, 1884 (lat. $39^{\circ}27'10''$ N., long. $69^{\circ}56'20''$, 1346 fathoms). — Günther, Rep. Voy. Challenger, vol. 22, p. 25, 1887 (copied).

— Goode and Bean, Oceanic Ichth., p. 185, pl. 55, figs. 204^a, 1895 (type). —

Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 1, p. 839, 1896 (copied).

— Jordan, Evermann, Clark, Rep. Comm. Fisher., 1928 (1930), pt. 2, p. 233

(reference). — Parr, Bull. Bingham Oceanogr.

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 383, 1899 (reference). — Brauer, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee Fische, p. 286, 1906 (Gulf of Guinea, lat. $3^{\circ}55'$ S., long. $7^{\circ}48'5''$ E., 3000 meters), p. 396 (reference).

Coll., vol. 3, art. 6, p. 10, December 1933 (lat. 21° to 23° N., long. 72° to 77° , 7000 feet).

— Parr, Bull. Bingham Oceanogr.
Coll., vol. 3, art. 6, p. 10, December
1933 (lat. 21° to 23° N., long. 72° to
 77° W., in 7000 feet).

Canal 29

412

Synagris sumbawensis (Bleeker)

Dentex sumbawensis Bleeker, Natuurk.
Tijdschr. Nederland. Indië, vol. 19, 1859,
p. 435. Sumbawa; Atlas Ichth. Ind.
Néerland., vol. 8, 1872-76, ^{p. 94,} pl. (50) [not pl.
Perc. 30, fig. 2, as stated in synonymy] 328,
fig. 2 (Sumbawa).

Depth $3\frac{3}{4}$; head $3\frac{1}{2}$, profile inclined.
Snout $3\frac{1}{2}$ in head; eye $3\frac{1}{2}$, equals snout,
greater than eye; maxillary reaches $\frac{1}{4}$
in eye, expansion $\frac{2}{5}$ of eye, length $2\frac{3}{5}$
in head; jaws subequal; 6 to 8 upper
front canines, none below; bands of
villiform teeth in jaws, outer row little
enlarged; interorbital very low; hind
preopercle edge minutely serrated,
lower edge entire; preorbital depth
 $2\frac{2}{5}$ in eye.

Scales 50 in lateral line; 3 above,
10 below, predorsal extend forward

Depth $2\frac{1}{8}$; head $2\frac{7}{8}$, width $1\frac{1}{2}$.
 Snout $2\frac{4}{5}$ in head from snout tip;
 eye $5\frac{1}{4}$, $1\frac{3}{4}$ in snout, 2 in
 interorbital; maxillary reaches
 $1\frac{1}{2}$ eye diameters behind eye,
 expansion $1\frac{1}{5}$ in eye, length $1\frac{1}{10}$.
 in head from snout tip; only 3
 lower canines; interorbital 3,
 broadly convex, rather low. Gill
 rakers 6+9, short denticles, $1\frac{1}{2}$
 in gill filaments, which $1\frac{2}{3}$ in
 eye.

Scales 80 in lateral line to
 caudal base and 4 more on latter;
 34? pores in lateral line; 11
 scales above, 32 below, 26
 predorsal forward to occiput.
 Scales with 6 radiating beveled
 spines marginally.

797

43943 U.S.N.M. Mauritius. Colonel
Nicholas Pike. Length 134 mm.

52247 U.S.N.M. Yarrow, Bureau
of Fisheries. Length 38 mm. As Holacanthus
nicobariensis.

D. 18, I, fourth ray $2\frac{2}{5}$ in total head length; A. 9, fourth ray 3; caudal (broken) small; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{1}{6}$; ventral $1\frac{1}{2}$.

Uniform blackish brown. Fins all pale. Iris dark slate.

Gulf Stream.

U. S. N. M., 33270. Type. Lat. $39^{\circ}27'10''N$, long. $69^{\circ}56'20''$, 1346 fathoms. Albatross Collection 2034.

Length 133 mm.

U. S. N. M., No. 38201. Lat. $36^{\circ}N$, long. 73° .

Albatross Collection 2724.

Length 157 mm, caudal tips broken.

1324 and 12997. Alibijaban Island,
Ragay Gulf, Luzon. March 6, 1909.
Length 105 to 128 mm.

1288. Alimango Bay. March 5, 1909.
Length 123 mm.

625. Bagacay Bay, Escapada. March 13,
1909. Length 130 mm.

3622 and 3623. Batanaman Island.
June 13, 1909. Length 78 to 92 mm.

3607 and 9004. Biri Channel. June 1, 1908.
Length 78 mm.

757. Buang Bay, Talijit Island.
March 15, 1909. Length 135 mm.

617 and 618. Burias Harbor, Busin
Island. March 8, 1909. Length 70 to 85 mm.

974 and 9005. Busin Harbor, Burias
Island. April 22, 1908. Length 70 to 110 mm.

818, 856, 857. Busin Harbor. April 23,
1908. Length 73 to 115 mm.

307

Caulolepis subulidens Garman

Caulolepis subulidens Garman, Mem.
Mus. Comp. Zool., vol. 24, p. 60, pl.
13, 1899 (type locality, lat. $7^{\circ}21'N.$,
long. $79^{\circ}2'$, in 1832 fathoms), p. 383
(reference). — Brauer, Deutsch. Tiefsee Exped.
Valdivia, vol. 15, Tiefsee Fische, p. 396, 1906
(reference).
— Horman, Discovery Rep., ^{Fishes} vol. 2, p. 347,
1930 (reference).

Depth 2 to $2\frac{1}{10}$; head $2\frac{3}{4}$ to $2\frac{4}{5}$, width $1\frac{1}{2}$ to $1\frac{7}{8}$. Snout $2\frac{7}{8}$ to 3 in head from snout tip; eye 5 to $5\frac{4}{5}$, $1\frac{3}{4}$ to 2 in snout, $1\frac{7}{8}$ to 2 in interorbital; maxillary greatly inclined, reaches 1 to $1\frac{1}{6}$ eye diameters behind eye, expansion $1\frac{1}{5}$ to $1\frac{1}{2}$ in eye, length $1\frac{1}{10}$ to $1\frac{1}{8}$ in head from snout tip; 3 large outer upper canines, front one longest, 4 each side below with front pair nearly twice long as upper front pair; interorbital $2\frac{3}{4}$ to 3, low, broadly convex. Gill rakers 8 + 8 clusters of 1 to 3 short spinous denticles, $\frac{1}{2}$ of gill filaments, which $1\frac{3}{4}$ in eye.

Scales 86 or 87 close along above lateral line to caudal base and 4 or 5 more on latter; 25

Xiphyrops Jordan and Jordan,
Memo. Carnegie Mus., vol. 10, 1922, p.

64. Type Holacanthus fisheri Snyder,
 or orthotypic.
~~Angelichthys~~

Body ovoid, oblong ovoid or subrhinoid,
 rather robust. Hind preopercle edge
 serrate and with large spine at angle
 below, which usually grooved. Short
 interopercle with strong spines. ~~the~~
 Scales small, roughened and usually
 with many small ones intermixed, in
 50 to 90 series transversely in body.
 Though lateral line usually concurrent
 with profile of back and complete to
 caudal base, mostly inconspicuous.
 Dorsal spines strong, 12 to 15, graduated,
 usually to last which longest. V of
 dorsal and anal usually rounded,
 sometimes pointed, only occasionally ^{former} ending
 in filament posteriorly. Caudal -

pores in lateral line; 12 scales above, 26 below, 25 predorsal forward to occiput. Scales with 4 or 5 divergent large radiating apical spines.

D. II, 16, I or 17, I, spines slender, weak, second 3 to 4 1/2 in total head length, second branched ray 2 to 2 4/5; A. I, 7 or I, 8, second branched ray 3 1/8 to 3 1/5; caudal (broken) 1 2/3?; least depth of caudal peduncle 3 1/2 to 5; pectoral (broken at tip) 1 1/4 to 1 3/5; rays I, 14 or I, 15; ventral I, 6, fin 1 3/5 to 2? (tips broken).

Uniform blackish. Iris slate black. Inside gill opening and mouth black.

67

Depth $1\frac{1}{4}$ to $1\frac{2}{5}$; head $2\frac{3}{4}$ to $2\frac{7}{8}$, width $2\frac{1}{8}$ to $2\frac{1}{4}$. Snout $2\frac{2}{3}$ to $2\frac{3}{4}$ in head; eye 3 to $3\frac{2}{5}$, $1\frac{1}{8}$ to $1\frac{1}{4}$ in snout, greater than interorbital; maxillary $\frac{3}{5}$ to $\frac{2}{3}$ in snout, $4\frac{1}{5}$ to 5 in head; interorbital $3\frac{2}{3}$ to $3\frac{4}{5}$, broadly convex; with eye small, low supraorbital spine anteriorly. Gill rakers 3 + 11 short points, about $\frac{1}{10}$ of gill filaments, which $1\frac{1}{5}$ in eye.

Scales 44 to 46 in lateral line to caudal base; 10 or 11 scales above lateral line, 25 or 26 below. Scales with 10 or 11 basal radiating striae; apical denticles 68 to 113, with 11 to 25 transverse series of basal elements; circuli fine.

D. II or III, 24, I to 26, I, fourth spine elongate filament, in some examples greater than total length of fish by half length of combined head and body, tenth ray $1\frac{2}{5}$ to $2\frac{2}{3}$ in head; A. III, 18, I or 19, I, third spine $1\frac{1}{2}$ to $1\frac{4}{5}$, fourth ray 1 to $1\frac{1}{5}$;

This species differs from the preceding only in the possession of a fourth lower canine posteriorly. As it is equally distinct in all the materials below it is evidently a valid specific character.

Heniochus diplocheutes Jordan, Proc. U.S.

Nat. Mus., vol. 26, 1903, p. 694, fig. 3.

Wakamoura, Japan.

D. 5185. Lusanan Light, N. 23°
E., 25.50 miles ($10^{\circ}05'45''$ N., 122°
 $18'30''$ E.), between Paway and
Negros. In 638 fathoms. March
30, 1908. Length 108? mm.

E. S. N. M., No. 38201. Lat. 36°
N., long. 73° W.

Albatross Collection 2724.

~~Length~~ 153 mm (caudal broken).

E. S. N. M., No. 48880.

Cortez Banks.

Albatross Collection 3627.

Length 102 mm (caudal broken).

